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Bibliography on Climatology of the Pacific

l. 4 September, 1953 No. 9

METEOROLOGICAL ABSTRACTS AND BIBLIOGRAPHY

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METEOROLOGICAL ABSTRACTS AND BIBLIOGRAPHY is a monthly publication devoted to:

A. Current Abstracts in English on important meteorological literature in every language.

B. Bibliographic references to other items of interest to the profession.

C. Selective, annotated bibliographies on subjects of immediate and special interest to meteorologists.

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METEOROLOGICAL ABSTRACTS AND BIBLIOGRAPHY

MALCOLM RIGBY, Editor

Vol. 4 SEPTEMBER, 1953 No. 9

SPECIAL FEATURE IN THIS ISSUE

A Selective Annotated Bibliography on Climatology and Marine Meteorology of the Pacific

(*For complete table of contents see back cover*)

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FOREWORD

Meteorological Abstracts and Bibliography is a monthly publication whose purpose is to ring to the attention of meteorologists current literature in their field and in related fields and o provide bibliographic information on various subjects, as interest demands.

Part I contains from 175 to 300 abstracts of current periodical literature and monographs in he fields of meteorology, hydrology, oceanography, etc. These abstracts are arranged ccording to the Universal Decimal Classification.

Part II of each issue comprises a special annotated bibliography of from 50 to 250 im- ortant references on a special subject without respect to recency of material. No attempt s made to prepare exhaustive bibliographies; instead, the aim is to include a representative ross section of the various aspects of a subject. Preference is given to recent material, omprehensive works, material from obscure sources, and items with good bibliographies.

Bibliographies previously published were:

No. Mo.	Vol. I, 1950	Vol. II, 1951	Vol. III, 1952
1. Jan.	**Atmospheric Pollution**	**Extended Forecasting**	**Climate—Northwest Africa**
2. Feb.	**Aerobiology**	**Long Range Forecasting**	**Carbon Dioxide**
3. March	**Cloud Physics**	**Soil Temperature**	**Climate—Argentina, etc.**
4. April	**Hail**	**Constants, Tables, etc.**	**Dew**
5. May	**Tornadoes**	**Climate—Near East**	**Objective Forecasting**
6. June	**Volcanic Dust**	**Climate—Middle East**	**Stratus Forecasting**
7. July	**Climatic Changes**	**Special Winds**	**Urban Climatology**
8. Aug.	**Thunderstorms**	**Radar Storm Detection**	**Climate—Central Africa**
9. Sept.	**Icing**	**Condensation Trails**	**Visibility**
0. Oct.	**Acoustical Propagation**	**Climate—Northeast Africa**	**Glaze and Rime**
1. Nov.	**Evaporation**	**Mountain Meteorology**	**Free Air Turbulence**

Bibliographies published this year are:

1. **Turbulence Theory,** Vol. IV, No. 1, Jan. 1953
2. **Turbulent Diffusion and Exchange,** Vol. IV, No. 2, Feb. 1953
3. **Frost and Frost Forecasting,** Vol. IV, No. 3, March 1953
4. **Climate of Australia and New Zealand,** Vol. IV, No. 4, April 1953
5. **High Level Winds (500–100 mb),** Vol. IV, No. 5, May 1953
6. **High Level Winds (above 100 mb),** Vol. IV, No. 6, June 1953
7. **Jet Stream,** Vol. IV, No. 7, July 1953
8. **Radiation Bioclimatology,** Vol. IV, No. 8, Aug. 1953
9. **Climatology and Marine Meteorology of the Pacific,** Vol. IV, No. 9, Sept. 1953

Forthcoming bibliographies will be:

10. **Auroras,** Vol. IV, No. 10, Oct. 1953
11. **Sferics,** Vol. IV, No. 11, Nov. 1953

Other bibliographies in preparation are:

Actinometers
Arctic Meteorology
Auroral Physics
Climate of Southeast Asia and the East Indies
Machine Methods in Meteorology
Microwave Propagation
Oceanographic Meteorology
Ozone
Radiation Data
Snow Cover
Tropical Cyclones
Tropopause Variations

Part III contains a listing of the contents of those journals which are primarily meteoro- gical. These are published in the earliest issue where space permits.

Part IV is made up of author, subject and geographical indexes. In the December issue umulative author, subject, geographical and journal indexes are published.

EXPLANATIONS

Location of material: For each entry, a symbol is given for at least one library where the material may be found. The Union List of Serials (Gregory) is the source of most of the symbols used. In some cases, where no symbol has been assigned to a library, one will be devised according to the principles of the Union List.

Library symbols used frequently may be found in the following list:

DA:	U. S. Dept. of Agriculture Library, Washington, D. C.
DBS:	U. S. Bureau of Standards Library, Washington, D. C.
DGS:	U. S. Geological Survey Library, Washington, D. C.
DLC:	Library of Congress, Washington, D. C.
DSG:	U. S. Army Medical Library, Washington, D. C.
DSI:	Smithsonian Institution Library, Washington, D. C.
DWB:	U. S. Weather Bureau Library, Washington, D. C.
GB-MO:	Great Britain, Meteorological Office Library, Harrow, England.
MH-BH:	Harvard University, Blue Hill Observatory (and American Meteorological Society) Library, Milton, Mass.
NN:	New York Public Library, New York, N. Y.
NNA:	American Geographical Society Library, New York, N. Y.

Other symbols:

*	before an entry indicates a good data source.
†	before an entry indicates a good bibliography.
§	before an entry indicates a synoptic case history study accompanied by charts.

Geographic locations are in the English form rather than the form used locally, for example, Moscow for Moskva.

Titles of articles or monographs are in the language of the original article unless otherwise stated. Slavic (Cyrillic) titles are transliterated into the Roman alphabet according to the Library of Congress transliteration scheme.

Abbreviations:

Titles of periodicals are not abbreviated, as a rule.

The months of the year from March to July are not abbreviated. Other months are abbreviated as Jan., Feb., Aug., Sept., Oct., Nov., and Dec.

The word or abbreviation for Volume (Tom, Band, Jahrgang, Año, etc.), for Number (Heft, Fascicule, Vypusk, etc.) and for page or pages is omitted from most entries. Thus an entry will read as follows:

Meteorologische Rundschau, 2(5–6):146–151, May–June 1950.

This indicates that the article appeared in *Meteorologische Rundschau, Jahrgang* 2 (Vol. 2), *Heft* 5–6 (No. 5 and 6), *pages* 146–151, May–June 1950.

PART I. ABSTRACTS OF CURRENT METEOROLOGICAL MATERIAL

COMPENDIUM ARTICLES AND WORK OF SPECIAL INTEREST

4.9–1 550.3:550.381

†Balsley, James R. (*U. S. Geological Survey*), **Aeromagnetic surveying.** *Advances in Geophysics*, N. Y., 1:313–349, **1952.** 18 figs. (some fold.), 89 refs. **DLC**—A comprehensive review article, summarizing in a systematic manner the development of instrumentation and use of equipment for geophysical exploration by means of the air-borne magnetometer. The fluxgate or saturable inductor was used as early as 1936 to measure magnetic fields, but it was not incorporated into a geophysical field instrument for aeromagnetic surveys until 1944. Most of the 89 articles cited date since 1946. The basic instrument, associated equipment (cameras, altimeters, etc.), field survey technique, compilation of field data, interpretation of data, applicability, and advantages or limitations are treated in separate chapters. Actual results, including charts which were compiled from surveys in Virginia, Maine, Bikini Atoll, Quebec, Michigan, Adirondacks and Pennsylvania are analyzed in Chap. 7. *Subject Headings:* **1. Aeromagnetic surveys 2. Air-borne magnetometers 3. Geological surveys 4. History of geophysical instruments 5. Advances in geophysics.**—*M.R.*

4.9–2 551.521(02)

†Chandrasekhar, Subrahmanyan, **Radiative transfer.** Oxford, Clarendon Press, **1950.** Price $8.50. 393 p. figs., refs., eqs. **DWB**—A textbook which covers thoroughly and in great detail the modern theories of radiative transfer, scattering, polarization, emission, absorption, diffuse reflection, Rayleigh scattering and scattering by planetary atmospheres, radiative equilibrium of a stellar atmosphere and other problems of astrophysics and radiation in atmosphere with varying geometrical, physical and chemical properties. After each chapter there is an extensive list of annotated references on pertinent literature. The vast amount of theory which is carefully developed, and the concrete application cited make this unique work invaluable to the meteorologist working in radiation or optics. *Subject Headings:* **1. Radiative transfer 2. Planetary atmospheres 3. Scattering 4. Textbooks.**—*M.R.*

4.9–3 551.510.534:551.521.63

†Craig, Richard A., **Radiative temperature changes in the ozone layer.** (In: **Compendium of meteorology.** Boston, American Meteorological Society, **1951.** p. 292–302. 4 figs., table, 63 refs., 29 eqs.) **MH-BH**—A concise review is given about the ozone distribution, the temperature distribution in the ozone layer, the ozone absorption, the photochemistry of ozone and the possible solar effects on ozone, owing to the large variability of UV radiation from the sun. The theory of heating and cooling of the ozone layer is examined and the results of calculations given. The main heating source is the ozone and oxygen absorption in the UV. Rocket flights gave new data on the solar spectrum in the important region 1800 to 3500 Å. Atmospheric gases, responsible for cooling, may be water vapor, carbon dioxide and ozone. *Subject Headings:* **1. Ozone layer 2. UV radiation 3. Ozonosphere heating 4. Compendium articles.**—*A.A.*

4.9–4 551.556.4:551.510.42(02) 551.574.1(02)

†DallaValle, Joseph Marius, **Micromeritics; the technology of fine particles.** 2nd ed. New York, Pitman, [**1948**]. 555 p. 131 figs., 88 tables, eqs., append., bibliog. p. 496–538. Price $8.50. **DWB**—A technical test for engineering students covering all aspects of the science of the physics of small particles, and application of this knowledge to soil physics,

hydrology, industrial operations, etc. Methods of measuring particles, units, the behavior of particles in fluids, equations of motion of various types; size, shape and size distribution; settling, packing, sieving, calibration of instruments, behavior of particles under pressure, diffusion (thermal, turbulent, and point source), electrical, optical and acoustical aspects; thermodynamics of small particles (heat transfer); surface properties (absorption, condensation, evaporation, hygroscopicity); chemical properties; transport by water and wind (sand dunes, atmospheric dust and its sampling, pollution and its control). This second edition contains a great deal of material not included in the first (1943) edition. For instance, the chapter on particle dispersion by eddy diffusion is much more comprehensive and leads to new treatment of the physics of smoke, dust and sand movement. Most of the chapters have been revised, expanded or re-written. The bibliography is most extensive, comprising over 600 entries (43 pages). A major portion of the work is devoted to theoretical treatment, although each such treatment leads to definite applications. *Subject Headings:* **1. Micromeritics 2. Small particles 3. Dispersion of particles 4. Textbooks 5. Sand 6. Dust. 7. Micromeritics bibliographies.**—*M.R.*

4.9–5 551.510.53

Newell, Homer E., Jr., **Temperatures and pressures in the upper atmosphere.** (In: **Compendium of meteorology.** Boston, American Meteorological Society, **1951.** p. 303–310. 8 figs., 20 refs., 3 eqs.) **MH-BH**—The sources of our knowledge of temperatures and pressures in the upper atmosphere are balloon studies, propagation of sound, ozone heating, free oscillations, meteor and rocket measurements. The theory and praxis of these methods is examined and the results are summarized. Wide differences in the temperatures and pressures ascribed to the upper atmosphere are found in the literature. The number of rocket measurements is still too small to give more exact average results. Graphs show results obtained from a balloon flight up to 42 km, from sound velocities up to 49 km, from ultraviolet absorption in the ozonosphere up to 53 km and from rocket flights up to 125 km. The most probable temperature distribution is 220°K at 30 km height, 350° at 55 km, 240° at 80 km, upwards temperature increases sharply (380° at 120 km height). *Subject Headings:* **1. Upper atmosphere 2. Vertical temperature gradient 3. Pressure gradient 4. Compendium articles.**—*A.A.*

4.9–6 551.5:019.941:05(431/5)

†**Physikalische Berichte.** Verband Deutscher Physikalischen Gesellschaften, e.V. Hermann Ebert (ed.) and Michael Schön (ed.), v. 1, Jan. 1, **1920;** last issue received, v. 31, No. 10, Oct. **1952.** Monthly. **DWB**—Several sections of this well known abstract periodical contain items of interest to meteorologists. The greater part of this material, however, is concentrated in sections 10 (astrophysics) and 11 (geophysics). The latter section consists of 8 or 10 pages of abstracts (or reviews) on geodesy, terrestrial magnetism, ionospheric physics, radio propagation in atmosphere, cosmic radiation, etc. The abstracts are all in German but original titles of articles (many in English) are given without translation into German. About half of the items have long abstracts; the other half contain title entries only. Abstracts of geophysical articles appearing in other sections of each issue are cross indexed in the section on geophysics. *Subject Headings:* **1. Abstracting periodicals 2. Geophysics abstracts 3. German language 4. Germany. I. Verband Deutscher Physikalischen Gesellschaften II. Ebert, Hermann** (*ed.*) **III. Schön, Michael** (*ed.*).—*M.R.*

4.9–7 551.48(09)

Pritchard, D. W. (*Chesapeake Bay Inst., Johns Hopkins Univ.*), **Estuarine hydrography.** *Advances in Geophysics*, N. Y., 1:243–280, **1952.** 9 figs., 10 refs., 3 eqs. **DLC**—The emphasis in this review article is on the recent work in North America on the hydrography of coastal inlets. Physical hydrological, geological or geomorphological causes or structure are considered in definitions or classifications of estuaries. These various factors and the results of the processes involved, are considered in separate sections of the comprehensive article. Circulation patterns, dynamics of deep fjord and of coastal plain estuaries, flushing of tidal estuaries, fresh water concentration and salt balance and mixing length theory of tidal flushing are discussed in their respective relation to the general subject. *Subject Headings:* **1. Estuarine hydrography 2. History of hydrography 3. Definitions 4. Advances in geophysics.**—*M.R.*

4.9–8 532:551.5

Rouse, Hunter (*Iowa Inst. of Hydraulic Res., State Univ. of Iowa*), **Model techniques in meteorological research.** (In: **Compendium of meteorology.** Boston, American Meteorological Society, **1951.** p. 1249–1254. 3 figs., 20 refs.) **MH-BH**—A brief sketch of the principles of dimensional analysis, of the π theorem and of their application to describe phenomena in fluid mechanics is presented and laboratory methods of prototype simulation for measuring flow patterns of meteorological phenomena are described. Detailed and critical discussions of the scale model investigations of ABE on the wind structure of Fujiyama, of the air currents in the vicinity of the Rock of Gibraltar, of laboratory studies of diffusion of smoke and gas from point sources, of the effect of the earth's rotation and of thermal stratification upon atmospheric flow patterns, of convectional layers and of flow in the friction layer are presented. *Subject Headings:* **1. Fluid mechanics 2. Compendium articles.**—*I.L.D.*

4.9–9 550.3(02)551.5(02)

Tverskoĭ, Pavel Nikolaevich, **Kurs po geofizike.** [Course in geophysics.] Sofia, "Nauka Izkustvo," **1951.** 355 p. 165 figs., 48 tables, 90 eqs. Trans. from Russian, "Kurs geofiziki." Leningrad, **1936. DLC**—A Bulgarian translation of a standard Russian text, with careful reproduction of the line drawings, diagrams and numerous equations, but poor reproduction of photographic material. The publication is of high quality and the contents excellent from a technical standpoint. The separate chapters cover the following aspects of earth science: 1) Figure of the earth and geodesy, 2) Wave motion in earth, sun and atmosphere, 3) Seismic phenomena, 4) Interior structure, temperature, etc. of the earth, 5) Magnetic field, 6) Electric phenomena in the atmosphere and earth's crust and core (including aurora), 7) Radiant energy. At least half of the material is of interest to meteorologists. Most of work is based on Russian sources prior to 1936. *Subject Headings:* **1. Geophysics 2. Bulgarian language 3. Translations 4. Textbooks.**—*M.R.*

4.9–10 551.510.53:551.590.25

†Whipple, Fred L. (*Harvard Col. Aubs.*), **Exploration of the upper atmosphere by meteoritic techniques.** *Adances in Geophysics*, N. Y., 1:119–154, **1952.** 7 figs., 4 tables, 74 refs. **DLC**—A comprehensive review of the entire field of meteor observation and the use of meteors in upper atmosphere research. Meteors, meteorites and meteroids; meteoritic dust or micrometeorites, meteor trails and meteor trains, meteor showers, etc. are defined or distinguished one from another. Visual photographic, spectral, radio and micrometeoritic techniques in observation and results therefrom, are discussed in separate paragraphs. Use of this data and theories pertinent thereto, in determining the density, temperature and pressure of the stratosphere and, finally, the estimation of winds at the 40 to 110 km levels from meteor train observations, and recently from radio reflection (Body-Doppler) measurements involving ionization, persisting after the meteor has been consumed, are summarized. *Subject Headings:* **1. Meteor research 2. Ionospheric winds 3. Structure of the stratosphere 4. Review articles 5. Advances in geophysics.**—*M.R.*

4.9–11 521.531.75(09)

Woolard, George Prior (*Wisc. Univ. and Woods Hole Ocean. Inst.*), **The earth's gravitational field and its exploitation.** *Advances in Geophysics*, N. Y., 1:281–311, **1952.** fig. (fold). 5 tables, 14 refs. **DLC**—A review article, summarizing at great length the present knowledge of the earth's gravitational field and uses of this knowledge (in geology, prospecting, hydrographic work, etc.). The history of geodesy dating back to GALILEO (1590) and NEWTON (1686) is sketched. Experimental and mathematical methods of determining g, gravity anomalies, types of measurement, effects of topography, actual base values at land stations, sea (submarine) observations, studies of the earth's crust, strength of the earth and a list of symbols in use in this field are treated successively in this work. *Subject Headings:* **1. Geodesy 2. Gravity observations 3. History of geodesy 4. Advances in geophysics.**—*M.R.*

GENERAL METEOROLOGY

See also: **Physical reports** (German Physical Societies), 4.9–6; **Model techniques in meteorological research** (Rouse), 4.9–8; **Course in Geophysics** (Tverskoĭ), 4.9–9.

4.9–12 551.5(03)(02)

Linke, Franz, **Linkes Meteorologisches Taschenbuch.** v. 1. New ed. by Franz Baur and others. Leipzig, Geest and Portig, **1951.** 359 p. **DWB**—This welcome new edition of Linke's famous "Taschenbuch" (v. 1) contains essential material from several of the volumes of the previous editions, revised and brought up to date (1951), and in addition some brand new chapters. For instance: Chap. I, by KARL KEIL gives the principal radio broadcasting stations throughout the world, call letters, hours and nature of material broadcast for synoptic and other meteorological purposes. Chap. II is BERGERON's "Sechssprachiges Meteorologisches Wörterbuch" (2500 words). Chap. IV, by KARL KNOCH and ALFRED SCHULZE, gives tables of location of main weather stations and monthly and annual means of pressure and temperature for 1901–30 for stations in every part of the world. Chap. V, by R. MÜGGE, presents the International Cloud Classification. Chap. VI the U.D.C. for meteorology and related subjects (in German). Chap. VII is an expanded historical chronology by CARL KASSNER (up to 1947). (For 1st ed. *see item* 2D–11, April 1951, *MAB.*) *Subject Headings:* **1. Linke's Taschenbuch 2. Meteorological glossaries 3. U.D.C. for meteorology. I. Baur, Franz** (*ed.*) **II. Bergeron, Tor III. Kassner, Carl IV. Keil, Karl V. Knoch, Karl VI. Mügge, Ratje VII. Pogade, Gerhard VIII. Schulze, Alfred.**—*M.R.*

4.9–13 551.5:016:05:019.941

†**Bibliography of Technical Reports.** [Pub.] Wash., D. C. First issue received, v. 1, No. 1, Jan. 11, **1946.** Last issue received v. 18, no. 3, Sept. 12, **1952.** Issued by U. S. Dept. of Commerce, Office of Technical Services. Weekly, Jan. 1946–June 1948; monthly, July 1948–. Title has varied. Indexes v. 1–10, 1946–1948, in 1 vol. **DLC**—Each issue of this monthly bibliography contains a section (of a page or two) entitled "Meteorology and Climatology" containing half a dozen or more abstracts of contract reports on geophysical subjects. Some interesting items appear in section on aerodynamics. The price of the report, of a microfilm or photostat copy thereof and the "PB" order number, are included and subject headings are added to each entry. All "PB" documents (150,000 of them) are available for inspection at the Library of Congress. *Subject Headings:* **1. Technical reports 2. Bibliographies 3. Abstracting periodicals.**—*M.R.*

4.9–14 551.5:016:025.45

†France. Météorologie Nationale and Société Météorologique de France, **Bibliographie météorologique internationale, Nouvelle Série.** [International meteorological bibliography, new series.] Paris, v. 1–6, 1933–1939; v. 7, n.d.; from 1946– issued in Fasc.; pub. 1946–. Last No. received Fasc. 1, **1949.** Title varies: v. 1–2, **Bibliographies Internationales de Météorologie Générale;** v. 3, **Bibliographie Météorologique Internationale. DWB, DLC.** Also: France. Météorologie Nationale, **Bibliographie météorologique, 1921/1924–1932.** [Meteorological bibliography, 1921/1924–1932.] Paris, publisher varies. 9 pieces. Running title: **Bibliographie Générale des travaux de météorologie pendent l'année. . . . DWB**—This long series of classified and partially annotated bibliographies represents the best effort of the I.M.O. and the French Meteorological Service to prepare annual bibliographies covering most of the world's meteorological literature. Each country is supposed to contribute material for articles published in that country, but only a few countries have done so consistently (Switzerland, Australia, Belgium, Great Britain and a few others). The material is arranged according to the U.D.C. scheme for meteorology (551.5), with an author index at the end of each year (volume). The original title is usually given, followed by a French translation of the title and the name of the publisher or journal in which the article appeared. All of the works in each volume are published during that year, so the volume cannot be issued for a year or so after the end of the year in question, and any material that turns up later is ignored. In the case of Slavic or rare language titles, the original title is translated into English or French and the title of the journal into French. Abstracts are all brief and in French. When a cross reference is desired, the title is repeated in its proper place and the reader is referred

to the main entry for the abstract. The material is arranged two-columns to the page and on only one side of the page so that items can be cut out and pasted on cards if desired. About 2000–2500 items are published each year. A rough subject index is provided by listing the terms in alphabetical order followed by the equivalent U.D.C. number as it would be used in that particular volume. The references in the Geographical and the Author indexes are also to U.D.C. numbers. The 1938 volume was issued after the war (1949) and contained a list of contributors (services). The 1939 volume also came out 10 years late due to the war. *Subject Headings:* **1. International meteorological bibliographies 2. Meteorological bibliographies 3. Abstracting periodicals 4. U.D.C. for meteorology.**—*M.R.*

4.9–15 551.5:06

Weickmann, Ludwig Friedrich, **Die Organisation eines modernen Wetterdienstes.** [The organization of a modern weather service.] *Germany. Deutscher Wetterdienst in der US-Zone, Berichte*, No. 42:459–463, **1952.** fig., table. **DWB**—Review of world's meteorological services, with diagram of numbers of synoptic and climatological stations per million inhabitants and per 10,000 km², in each country of Europe. The organization in the US-Zone is summarized. *Subject Heading:* **1. Meteorological services.**—*C.E.P.B.*

4.9–16 551.5:06

Wood, Walter A. (*Arctic Inst. of North America*), **The Arctic Institute of North America.** *Weatherwise*, 5(4):85–87, Aug. **1952.** 2 figs. **MH-BH**—Reviews the importance of the Arctic to the rest of the world and the formation of the Arctic Institute. States the purpose of the Institute and enumerates some of its field research projects, of which there have been over one hundred. *Subject Heading:* **1. Arctic Institute of North America.**—*M.L.R.*

4.9–17 551.5:06.04(410)

Directorship of the Meteorological Office: Sir Nelson Johnson, K.C.B., Prof. O. G. Sutton, C.B.E., F.R.S. *Nature*, London, 171(4359):865, May 16, **1953. DWB**—Sir Nelson Johnson (Director since 1938) is to retire in autumn 1953 and be succeeded by O. G. Sutton. Details of their work are given. *Subject Headings:* **1. Great Britain Meteorological Office 2. Johnson, Sir Nelson 3. Sutton, O. G.**—*C.E.P.B.*

4.9–18 551.5:061.4(42)

Chilton, D., **The science of weather.** London, H. M. Stationery Office, **1950.** 32 p. 8 figs. **DLC**—This pamphlet was issued as a guide to an exhibition marking the 100th anniversary of the founding of the Royal Meteorological Society (held at the Science Museum, London, from March to June 1950). The booklet contains information for the general public and explanatory notes commenting on the exhibits, which were arranged in five sections: "A century of meteorology"; "Observing the weather"; "Forecasting the weather"; "Weather in our daily lives"; and "Meteorological research." Meteorological phenomena, instruments, establishments and activities are represented in photographs. *Subject Headings:* **1. Meteorological exhibitions 2. London, England. I. Royal Meteorological Society.**—*G.T.*

4.9–19 551.5:11

Hellpach, W., **Die Stellung der Meteorologie in der Universitas Literarum und im Studium Generale.** [The place of meteorology in the liberal arts college and in general study.] *Germany. Deutscher Wetterdienst in der US-Zone, Berichte*, No. 38:1–4, **1952. DWB**—A philosophical discussion of the place of meteorology. The sciences must be regarded as a whole, no part taking precedence. In general study, weather is one of the most interesting subjects. *Subject Heading:* **1. Teaching of meteorology.**—*C.E.P.B.*

4.9–20 551.5:539.163

Herbst, Walter, **Radioaktive Isotope in der meteorologischen und angewandt-meteorologischen Forschung.** [Radioactive isotopes in meteorological and applied meteorological investigation.] *Annalen der Meteorologie*, 5(6):175–184, **1952.** 4 figs., table, 18 refs. German summary p. 175, English p. 183. **DWB**—The use of radioactive isotopes, either free or attached to water molecules, dust, pollen, etc., is a possible means of tracing air currents.

The use of such indicators to trace the passage of aerosols through organic bodies is exemplifie by water particles marked with P^{32} in guinea pigs. The meteorological and biometeorologica results of atom bomb explosions are discussed; radioactive effects have been reported up t 1000 km distance in U. S. Finally examples are given of use of isotopes in agricultural me teorology, e.g., best use of fertilizers and effect of heavy rain on soil nutrients. *Subje Headings:* **1. Radioactivity in the atmosphere 2. Atomic explosions.**—*C.E.P.B.*

4.9–21 551.5:550.3

Grigor'ev, A. A., **Das Problem des Stoff- und Energieaustauschs in der Lithosphäre Hydrosphäre und Atmosphäre und seine Bedeutung für die allgemeine Theorie der physische Geographie.** [The problem of matter and energy exchange in the lithosphere, hydrospher and atmosphere and its significance for the general theory of physical geography.] *Peter manns Geographische Mitteilungen*, 97(1):69–77, **1953.** 9 refs. Trans. from: *Akademii Nauk, SSSR, Izvestiia, Ser. Geograficheskaia*, 4:12–27, **1952. DLC**—This philosophical essa sets out the complex interactions between earth, air and water. Besides evolution of soil and mechanical erosion and deposition, circulating underground water interacts chemicall with the crust to depths of 600 m or more. Atmosphere acts on lithosphere by transportin sand, dust, and volcanic ash. Interaction between hydrosphere and atmosphere is very extensive. Energy is transported by radiation, circulation and turbulent processes. *Subjec Headings:* **1. Geophysics 2. Meteorological philosophy. 3. Translations.**—*C.E.P.B.*

4.9–22 551.5:612.014.4

Taylor, Craig L. (*Univ. of Calif., Los Angeles*), **Human tolerance for temperature extremes** (In: U. S. School of Aviation Medicine, Randolph Field, Texas, **Physics and medicine of the upper atmosphere.** Albuquerque, **1952.** p. 548–561. 6 figs., 2 tables, 27 refs.) **DLC**—The type and severity of thermal exposures of human beings under natural conditions in industry and emergency conditions are described briefly. The modes of heat exchange between the body and its environment—convection and radiant exchange, evaporation—are considered primarily from the physiological aspect. The various indexes of the biological state of human beings in a given environment are described briefly and the time tolerance for extreme heat and extreme cold exposures for resting and working men is discussed. *Subject Headings:* **1. Heat tolerance 2. Physiological climatology.**—*I.L.D.*

4.9–23 551.5:62

Jehn, K. H. (*Univ. of Texas, Austin*), **Some aspects of engineering meteorology.** *Scientific Monthly*, 76(1):3–10, Jan. **1953.** 8 photos, 32 refs. **DWB**—After defining "engineering meteorology" as "the application of meteorological principles and practices to certain engineering problems" in contrast to "meteorological engineering" defined as "the application of engineering principles and practices to meteorological problems," the author discusses in general terms the design and forecasting aspects of meteorology or climatology in connection with engineering problems like construction and operation of hydrological structure (determination of maximum flood; water-level forecasting), release of industrial waste (atmospheric pollution), oil industry, particularly in Gulf Coast locations (wave and swell conditions), architecture (microclimate), highway and electrical power-line construction (state of atmosphere), aircraft design, etc. Suggestions are made to improve present methods of training for engineering meteorology. *Subject Heading:* **1. Engineering meteorology.**—*G.T.*

4.9–24 551.5:91:06

Kratkiĭ otchet geograficheskogo obshchestva SSSR za 1950; 1951 g. [A brief account of the Geographical Society of the U.S.S.R. for 1950; 1951.] *Vsesoiuznoe Geograficheskoe Obshchestvo, Izvestiia*, 83(4):412–454, July/Aug. **1951;** 84(6):640–688, Nov./Dec. **1952. DLC**—A detailed summary is given of the activities of the various committees of the main branch of the Geographical Society of the U.S.S.R. in Moscow and of its various branches throughout the Soviet Union. The Meteorological Commission, whose members are listed by name, held meetings at which the following papers were read: the education of meteorologists; the change of climate resulting from the afforestation of the desert regions: characteristics of the climates of oases in Central Asia; the spread of desert locusts and its relationship to monsoon rainfall.

At the meetings of the meteorological commission of the Ukrainian branch, papers were read on agricultural and medical meteorology; on the meteorological conditions of fog formation; on the heat sensation of man and its value in assessing the hygienic value of climate; on instrumentation, namely, the universal meteorological apparatus Shakhbazian-Erman; influence of the electrical field on nucleation in thunder clouds, soil climatology, general circulation, etc. *Subject Headings:* **1. Geographical societies 2. Meteorology 3. U.S.S.R.**—*I.L.D.*

METEOROLOGICAL OBSERVATIONS AND INSTRUMENTS

METHODS OF OBSERVATION

See also: **Making decisions according to temp. frequency distribution** (Feussner), 4.9–116; **Precipitation trajectories and patterns** (Marshall), 4.9–190.

4.9–25 551.501.45:551.509.312(26)

di Benedetto, Felice, **Un nuovo metodo per la rappresentazione sinottica dell'approfondimento e del colmamento dei sistemi barici in moto non stazionario sulle zone oceaniche.** [A new method for synoptic representation of deepening and filling of baric fields in nonstationary motion in maritime areas.] *Rivista di Meteorologia Aeronautica*, 11(3/4):26–37, July/Dec. **1951.** 7 figs., 6 refs. Italian, French, English and German summaries p. 26. **MH-BH**—The synoptic representation of deepening and filling of surface pressure systems on ocean areas in nonstationary motion is made possible for the first time. The deepening and filling equation related to the gradient wind equation and Blaton's relation for the curvature of the trajectories of air particle is used, under the condition that the variation of the direction of the wind due to internal changes of the pressure systems is negligible in the tendency interval. The angle between the direction of the gradient of pressure and the observed wind on oceans is taken as 75°. On the latter, account is made for the transisobaric movement of the weather ships. Tables for the practical application of the method are constructed and used to illustrate a general synoptic case. The deepening and filling charts show the formation and displacement of isodeepening and isofilling nuclei relative to pressure systems situated on ocean areas. These nuclei are conservative and their behaviour is regular. *Subject Headings:* **1. Differential kinematics 2. Marine forecasting 3. Methods of computation.**—*Author's abstract.*

4.9–26 551.501.45:551.571

Gogoleva, E. I. and Dobryshman, E. M., **Sviaz' otnositel'noĭ vlazhnosti s raznost'iu mezhdu temperaturoĭ i tochkoĭ rosy.** [Relation between relative humidity and the difference between temperature and dew point.] *Meteorologiia i Gidrologiia*, No. 4:31–34, Dec. **1950.** 3 tables, 3 refs., 3 eqs. **DLC**—A theoretical paper in which the authors show the nature of the relation and introduce a method of utilizing actual temperature and dew point data for characterizing the amount of moisture in the air. A comparison is made between results obtained by several formulas and between values over water and ice from 0 to 8.0°C. *Subject Headings:* **1. Relative humidity 2. Dew point temperatures.**—*A.M.P.*

4.9–27 551.501.45:519.241.1

Lauscher, Friedrich (*Vienna*), **Eine einfache Methode von W. Werenskiold, Oslo, zur Bestimmung von Korrelationskoeffizienten.** [A simple method of W. Werenskiold, Oslo, for determination of correlation coefficients.] *Wetter und Leben*, 4(8):130–132, Sept. **1952.** fig., 2 tables. **MH-BH**—A description and illustration of a simple and rapid method for an approximate determination of correlation coefficients by tabular or graphical means developed by W. Werenskiold (On the computation of the correlation coefficients. *Avh. Norske Videnskaps Akad. i Oslo, I. Math-Nat. Klasse* 1930, Nr. 8). The number of points in each quadrant are counted and $r=\sin\left(\frac{P-Q}{P+Q}\right)\cdot\frac{\pi}{2}$ or $\sin_{100}\left(\frac{P-Q}{P+Q}\cdot 100\right)$; $\sin_{100}$ designated the sine function in which the quandrant is divided into 100° instead of 90°. The calculation of r without a graph but by means of a combined frequency table is demonstrated. *Subject Headings:* **1. Methods of computation 2. Correlation coefficients.**—*I.L.D.*

4.9–28 551.501.6:551.509.2

Leight, Walter G. (*Ext. Fore. Sec., U. S. Weather Bur.*), **Experiment in the preparation of 72-hour prognostic 700 mb charts.** Sept. **1952.** 6 p. 2 figs., table, 5 refs. **DWB**—An attempt was made to find an objective method for verification of 72 hour prognostic preparation. Twenty prognostic charts prepared at the U. S. Weather Bureau, Extended Forecast Section between April and Aug. 1951 were verified by using a network of 25 check points (unknown to the forecasters) throughout North America and adjacent waters, and checking the observed heights of the 700 mb surface and the prognostic and observed heights 72 hours later. Departures from seasonal normals were computed and linear correlation coefficients obtained. The actual forecast anomaly and the persistence anomaly were compared. In 14 out of 20 cases the forecaster did better than persistence, in 5 cases poorer. Successes were only slightly better than persistence. *Subject Headings:* **1. Forecast verification 2. Prognostic charts 3. North America.**—*M.R.*

4.9–29 551.501.7:551.508.822

Beelitz, Paul, **Aerologisch-synoptische Kritik an den Radiosonden-Aufstiegen im Gebiet der Deutschen Demokratischen Republik.** [Aerological-synoptic discussion of the radiosonde ascents in the German Democratic Republic.] *Germany. Deutsche Demokratische Republik. Meteorologischer Dienst, Abhandlungen,* 3(17), **1953.** 39 p. 6 figs., 16 tables, 65 refs. **DWB**—By comparison with charts of 500/1000 mb relative topography a mean error of +5.5 gpm was found in the r/s results, equivalent to +0.3°C. Other data are compared. Possible errors of bimetallic elements include calibration errors, change of calibration with time or by transport or unskilled usage, lag, friction, radiation and freezing of rain (the last may give errors of over 7°C). Electrical measurement is free from most of these errors. Lag of aneroid chamber is known but it is difficult to eliminate temperature effects. Experimental correction may avoid this error. *Subject Heading:* **1. Radiosonde calibration.**—*C.E.P.B.*

4.9–30 551.501.7:518.3:551.557

Robertson, George W. and Cameron, Hugh (*Central Analysis Office, Ottawa*), **A planimetric method for measuring the velocity of the upper westerlies.** *American Meteorological Society, Bulletin,* 33(9):387–389, Nov. **1952.** 3 figs., 4 refs. **MH-BH**—The method for measuring the velocity of the upper westerlies consists of selecting two contours "which define the boundaries of maximum flow and which do not form part of a closed circulation." The height difference between the two contours is $H_2-H_1=\Delta H_1$ and the two longitude lines λ_1 and λ_2 which form the extreme longitudinal boundaries of the section of stream, the velocity of which is to be calculated, constitute the area measured with a planimeter. The west-east flow (v) through a section of the stream assuming geostrophic flow, $v=\frac{G\times\Delta H\times d}{f\times A}$; where G=acceleration of gravity, ΔH=difference in geopotential between the two boundary contours, $d=\lambda_1-\lambda_1$ in degrees of longitude; f=coriolis parameter and A=planimeter area. The construction of nomograph for planimetric measurement of the mean velocity of the westerly stream is described and such a nomograph is reproduced. The application of this method is illustrated. *Subject Headings:* **1. Nomograms 2. Upper air wind computation.**—*I. L. D.*

4.9–31 551.501.81:551.577

Atlas, David; Kerker, Milton and Hitschfeld, Walter, **Scattering and attenuation by non-spherical atmospheric particles.** *Journal of Atmospheric and Terrestrial Physics,* 3(2):108–119, Feb. **1953.** 6 figs., table, 9 refs., 12 eqs. **DWB**—R. Gans' theory of scattering and absorption of electromagnetic radiation by oblate and prolate spheroids is used to calculate back-scatter and attenuation by atmospheric particles. For randomly oriented non-spherical water particles these exceed those of spheres of the same volume. Back-scatter and attenuation by oriented particles depend on polarization and angle of incidence of radiation. Snow scatters like spheres of equal volume. *Subject Heading:* **1. Radar precipitation echoes.**—*C.E.P.B.*

4.9–32 551.501.81:551.576.11 623.13

Frost, R., **Meteorological report on the Singapore cloud detection trials.** *Great Britain. Meteorological Research Committee, M.R.P.* 757, Sept. 23, **1952.** 16 p. 3 figs., 14 refs., 9 tables. Mimeographed. **DWB**—Runs were made towards and through Cu and CuNb by aircraft with 3 cm radar. Heights of Cu giving radar echo 13–33,000 ft, many below freezing level; CuNb 29–55,000 ft. At transition level temperature is −30 to −35°C. Mean diameter: visual, 6 miles, radar 4½. Occasions of hail and of snow tabulated; risk of severe icing small. Lightning occurred only with cloud top above 35,000 ft. Up and down drafts tabulated; maximum updraft 53 ft/sec. Gust accelerations summarized in relation to position in cloud. Practically all turbulence can be avoided by avoiding radar response areas by a mile. *Subject Headings:* **1. Cumulonimbus clouds 2. Radar observations 3. Flight procedure 4. Singapore.**—*C.E.P.B.*

4.9–33 551.501.81:551.515.577

Reynolds, S. E. and Braham, Roscoe, (*New Mexico Inst. of Mining and Technology, Socorro*), **Significance of the initial radar echo.** *American Meteorological Society, Bulletin,* 33(3):123, March **1952.** 4 refs. **MH-BH**—The initial radar echo in thunderstorms was observed first at −10°C in New Mexico and at −2°C in Ohio. Since the ice crystals were small and since strong updrafts appear to be necessary for producing the high liquid water content essential for the rapid development of precipitation it can be assumed that the particles were rising. According to BERGERON, mechanism for precipitation development should not be expected to appear first in the region of the cloud warmer than −5°C. There is then a possibility for the existence of different precipitation processes in different geographical areas. *Subject Headings:* **1. Radar storm detection 2. Radar precipitation echoes 3. Thunderstorm formation.**—*I.L.D.*

4.9–34 551.501.89:551.594.52

Chapman, Sydney, **The geometry of radio echoes from aurorae.** *Journal of Atmospheric and Terrestrial Physics,* 3(1):1–29, Jan. **1953.** 8 figs., 3 tables, 9 refs., eqs. **DWB**—An examination of discrete auroral echoes in which part of a radio beam is reflected back to sending station in Northern Hemisphere from aurora borealis, or possibly from an aurora australis stream beyond the atmosphere. The reflecting unit is taken to be an auroral ray lying along a line of force of the geomagnetic field. Diagrams and tables show positions of surfaces reflecting radio beams of different elevations at stations in different latitudes. *Subject Headings:* **1. Auroras 2. Radio echoes.**—*C.E.P.B.*

4.9–35 551.501.9:551.579

Goliatin, V. K., **K voprosu organizatsii ukrupnennykh oblastnykh ili basseĭnovykh gidrometeorologicheskikh stantsiĭ.** [Organizing larger hydrometeorological stations for administrative regions or river basins.] *Meteorologia i Gidrologiia,* No. 5:47–48, **1952. DLC**—A discussion on administrative structure of a hydrological network. The author rejects the position made by M. L. ZATULLO (*Meteorologiia i Gidrologiia,* No. 4, 1951) for the organization of hydrological regions with an attached network of hydrological stations of up to 45 observational points. The most effective work of hydrological stations must be expected when the regional station is supervising a network of 10–20 observational points, with the staff including chief of station (higher hydrological education), engineer-hydrologist and several technicians and workers. *Subject Heading:* **1. Hydrologic networks.**—*N.T.Z.*

OBSERVATIONAL DATA

See also: **Storm, ice, whaling, Antarctic Sea** (van der Does), 4.9–203; **Natural history, Iceland** (Huxley), 4.9–216.

4.9–36 551.506.1(675)

*Institut National pour l'Étude Agronomique du Congo Belge, Brussels, **Bulletin Climatologique Annuel du Congo Belge et du Ruanda-Urundi, 1950, 1951.** [Annual climatological bulletin of the Belgian Congo and of Ruanda-Urundi, 1950, 1951.] *Institut National pour*

l'Étude Agronomique du Congo Belge. Bureau Climatologique, Communications, No. 4, 5, **1952.** 2 pieces. mostly tables, charts. **DWB, DLC**—First two volumes of an annual bulletin containing monthly values of meteorological elements. The first volume gives a list of 427 climatological stations (with geographic co-ordinates, altitude and climatic type) from which data were used; this is supplemented by another 94 stations listed in the second volume. Both volumes include tables of rainfall, temperature, humidity, insolation and evaporation, with a marked tendency toward the extension of information on the latter two elements in the second volume. A separate section is reserved in both volumes to the discussion of rainfall anomalies and to monthly pluviometric charts for the year. A list of publications of I.N.É.A.C. is added. An announcement and abstract of *Bulletin Climatologique* appears in the I.N.É.A.C.'s *Bulletin d'Information*, vol. 1, No. 3, p. 250, Sept. 1952. *Subject Headings:* **1. Annual meteorological reports 2. Climatic data 3. Belgian Congo.**—*G.T.*

4.9–37 551.506.1(058)(569.4)

*Israel. Meteorological Service, **Annual weather report, 1948–1950.** Hakirya, **1949, 1951.** 3 pieces. mostly tables. In English and Hebrew. Reports for 1949–1950 as: *Israel. Meteorological Service, Series B*, No. 16/W and 32/W. **DWB**—The monthly and annual means of the various meteorological variables for all weather stations and departures from the normal are given in the 1948 report. In the 1950 report also mean monthly pressure and map of Israel showing the locations of the weather stations are given. *Subject Headings:* **1. Annual meteorological reports 2. Israel.**—*I.L.D.*

4.9–38 551.506.3:551.582.2(42)

*Great Britain. Meteorological Office, **The climate of Kew Observatory 1871–1950. Prepared by A. G. W. Howard. Daily and monthly averages. 1951.** tables. Mimeographed sheets. **DWB**—Includes for each day highest and lowest daily mean temperatures, maximum and minimum temperatures, mean daily rainfall, frequencies of various amounts, extremes, dry and wet periods, and sunshine data. *Subject Headings:* **1. Long period records 2. Climatic data 3. Kew Observatory, England. I. Howard, A. G. W.**—*C.E.P.B.*

4.9–39 551.506.3(52)

*Japan. Central Meteorological Observatory, Tokyo, **Hourly data from July 1932 to Dec. 1936** [and] **Hourly data from Jan. 1937 to Dec. 1940.** *Japan. Central Meteorological Observatory, Tokyo, Weather at the Summit of Mt. Fuji*, No. 2 and 3, March **1941;** Dec. **1951.** 324 and 288 p. entirely tables. In English. **DLC, DWB**—A continuation of the first number of this series containing hourly observations at Yasunokawa (3.724 m) in the eastern slope of the summits of Fujiyama, begun during the Polar Year (1932) and continued through 1935. Tables give actual hourly observations of wind direction, speed, vapor pressure, relative humidity, cloud type and amount, sunshine duration, pressure and temperature, as well as extreme and means. No. 3 contains the same material as No. 2, continuing the record through 1940. Slight changes were made in Jan. 1940 in the definition of fog intensity, snow drift, calm and hourly wind velocity. *Subject Headings:* **1. Observational data 2. Mt. Fuji, Japan. I. Fujiyama Weather Station.**—*M.R.*

4.9–40 551.506.3:551.524.3(42)

*Manley, Gordon, **The mean temperature of central England, 1698–1952.** *Royal Meteorological Society, Quarterly Journal*, 79(340):242–261, April **1953.** fig., 6 tables, 27 refs. **DWB**—A composite table of monthly mean temperatures for each year is compiled. From 1815–1952 it is the mean of Oxford and author's various series in different parts of England (including London), Edinburgh and Utrecht. Valuable historical details about the records are included. *Subject Headings:* **1. Air temperature variations 2. Long period records 3. England.**—*C.E.P.B.*

4.9–41 551.506.3(676,678):551.577.34

*Sansom, H. W., **The trend of rainfall in East Africa.** *East Africa High Commission. Meteorological Dept., Technical Memorandum*, No. **1, 1952.** 6 p. 4 figs., tables. **DWB**—Trends of annual rainfall 1920–1949 and "isotrend" chart drawn. This shows 2 belts of

ncrease and 2 of decrease, but coefficients are considerably changed when 1922–51 is used nstead. *Subject Headings:* **1. Rainfall trends 2. East Africa.**—*C.E.P.B.*

INSTRUMENT CARRIERS

4.9–42 551.507.351:535.33(09)

Watson, E. C. (*Calif. Inst. of Tech.*), **The first reported observations on emission spectra.** *American Journal of Physics*, 20(9):569–577, Dec. **1952.** 3 figs., 8 refs. **DWB**—In connection with an historical sketch of the pioneer work done by a young Scots astronomer (THOMAS MELVILL) in 1752 on emission spectra, the fact that MELVILL also made soundings with kites attached one above the other on the same line, with thermometers attached is mentioned. The highest kites penetrated cumulus clouds. Thermometers were released at several altitudes by ringeing a match line, to get simultaneous readings at different heights. No electrical phenomena were experienced in these experiments made 2 years before FRANKLIN's. *Subject Headings:* **1. Kite soundings 2. Emission spectra 3. Historical sketches. I. Melvill, Thomas.**—*M.R.*

4.9–43 551.507.354

Randall, Dwight L. (*New Res. Lab., Wash., D. C.*), **The helicopter as a meteorological tool.** *American Meteorological Society, Bulletin*, 33(10):416–419, Dec. **1952.** 8 figs., 8 refs. **MH-BH**—Meteorological instruments, supported 60 ft or more below the front rotor of a Piasecki helicopter (HUP-1), are in undisturbed air at speeds of at least 5 knots so that helicopters can be used to obtain a 3-dimensional picture of the atmosphere over a local area. Helicopter turbulence smoke-plume photographic tests in which the smoke source was located on the ground and suspended on a cable at various distances below the helicopter were carried out in order to determine: "(1) the relative position of the wake below the craft at various flying speeds, (2) the general configuration of this wake with an air speed of 25 knots at 50 ft above the ground and (3) the speed of the current when it is directed downward, with the craft hovering 400 ft above the sea water surface." *Subject Headings:* **1. Helicopters 2. Atmospheric structure 3. Atmospheric turbulence.**—*I.L.D.*

INSTRUMENTS

See also: **Aerological-synoptic discussion of radiosonde ascents, Germany** (Beelitz); **Captive radiosonde observation, 4.9–167.**

4.9–44 551.508.51

Kawano, Y., **Mean velocity anemometer by use of smoothing circuit.** *Journal of Meteorological Research*, Tokyo, 4(3):126–128, May **1952.** fig., 2 refs., 4 eqs. In Japanese, English summary p. (9). **MH-BH**—The author reports an improvement of the Grinell II type anemometer by the use of circuit which he has developed. The circuit, which linearizes the current, resistance, and instrument reading, is illustrated in a diagram, and its operation explained. The mean velocity anemometer equipped with the new circuit is described briefly. Relation between current and time is graphically represented. *Subject Heading:* **1. Anemometers.**—*G.T.*

4.9–45 551.508.53/4

Woelfle, Friedrich, **Ein einfaches vollelektrisches Registriergerät für Windrichtung und mittlere Windgeschwindigkeit.** [A simple all-electric recording apparatus for wind direction and mean wind speed.] *Meteorologische Rundschau*, 5(7/8):133–134, July/Aug. **1952.** fig. **DWB**—Describes a recording apparatus for a cup anemometer and wind vane coupled to a dynamo driven by a 20 v alternating current and recording on waxed paper. Wiring diagram given. *Subject Heading:* **1. Anemographs.**—*C.E.P.B.*

4.9–46 551.508.54:551.553.6

Kano, K.; Kawano, S. and Watanabe, T., **A statistical analyser of the frequency distribution of the atmosphere** (1). *Journal of Meteorological Research*, Tokyo, 3(14/15):499–501, Dec. **1951.** fig. In Japanese, English summary p. (32). **MH-BH**—A cup type anemometer

combined with a pulse-counting circuit is described. The instrument records the frequency of wind velocities exceeding a certain value. A circuit diagram of the apparatus is presented. Results obtained with this experimental device are claimed to be satisfactory and will be published soon. *Subject Headings:* **1. Wind speed frequencies 2. Wind recorders 3. Japan.** —*G.T.*

4.9–47 551.508.54

Woelfle, Friedrich, **Ein neues Messgerät zur Registrierung der maximalen Windstärke.** [A new apparatus for registering maximum wind force.] *Germany. Deutscher Wetterdienst in der US-Zone, Berichte*, No. 38:354–355, **1952.** 2 figs., 3 refs. **DWB**—This quick response instrument consists of a cup anemometer coupled to a small dynamo. To obtain the maximum wind speed a condenser is introduced, fully charged by one revolution of the cups. *Subject Heading:* **1. Anemometers.**—*C.E.P.B.*

4.9–48 551.508.57

Kodaira, N. and Inaba, M., **On the inherent errors of the rawin set.** *Tateno, Japan. Aerological Observatory, Journal*, 5(1):1–5, March **1951.** figs., eqs. English summary p. 1. **DWB**—Short discussion of the angular errors due to the rawin set itself, due to wave propagation and due to the misreading of the indicator in the case of very strong fading. *Subject Headings:* **1. Rawin errors 2. Upper air wind measurement.**—*A.A.*

4.9–49 551.508.59:551.593.12

Bruch, G. and Clastre, J., **Sondages optiques de l'atmosphère: Applications à la météorologie.** [Optical soundings of the atmosphere: applications to meteorology.] *La Météorologie*, 4th Ser., No. 9:27–39, Jan.–March **1948.** 9 figs., 10 refs. **DWB**—Telescopic image of sun or moon projected on a screen shows systems of small undulations (concamerations). Different systems may move in different directions, and directions may change from day to day. These are attributed to wave-like fluctuations of upper winds at an altitude which can be determined from focal distance of movements. Method of observation described and some wind directions obtained in this way compared with rawin soundings. Regarded as a cheap method of getting upper winds. *Subject Headings:* **1. Upper air soundings 2. Scintillation.**—*C.E.P.B.*

SYNOPTIC ANALYSIS AND FORECASTING

See also: **Synoptic representation of deepening and filling of baric fields in nonstationary motion, maritime areas** (de Benedetto), 4.9–25; **Preparation of 72-hr prognostic 700 mb charts** (Leight), 4.9–28; **Mediterranean depressions in Alpine weather forecasting** (Gressel), 4.9–94.

4.9–50 551.509.33

Menella, Cristofaro, **Sulla previsione degli apporti pluviometrici per la prima metâ del 1952, nella Pianura Padana.** [Forecasting the precipitation of the first half of 1952 in the Po Valley.] *Rivista di Meteorologia Aeronautica*, 12(2):35–39, April/June **1952.** 3 refs. Italian, French, English and German summaries p. 35. **MH-BH**—The author offers a forecast of expected rainfall for the first six months of 1952. This forecast is based on the exceptional floods in the fall of 1951 as analyzed in connection with the pluviometric series 1764–1951 existing at the Astronomical Observatory of Milan. These series, together with those of Naples, Rome, Florence and Palermo, represent the world's longest pluviometric records. In working out his forecast for the Po Valley the author follows a statistical method based on certain correlations, worked out by himself and applied earlier to the four rainfall records mentioned above. *Subject Headings:* **1. Long range forecasting 2. Precipitation forecasting 3. Long period records 4. Po Valley, Italy.**—*G.T.*

4.9–51 551.509.54

Nagai, Tatuo, **An objective method of forecasting precipitation (1st report).** *Oceanography and Meteorology*, Nagasaki, 5(1/2):42–43, June **1951.** fig., 4 refs., 2 eqs. In Japanese. **DWB**—The author derives a formula with the help of which expected rainfall amount can be

xpressed as a function of vapor pressure, wind speed and time of beginning and of end of ainfall. The formula is claimed to have been verified with 80% accuracy in 156 cases for which xpected amounts were predicted in categories of 0–10, 10–20, 20–40, 40–60, and over 60 mm. *ubject Headings:* **1. Precipitation forecasting 2. Forecasting techniques.**—*G.T.*

4.9–52 551.509.58:551.515.41(76/7)

Means, Lynn N. (*U. S. Weather Bur., Chicago, Ill.*), **On thunderstorm forecasting in the entral United States.** *Monthly Weather Review*, 80(10):165–189, Oct. **1952.** 38 figs., tables, 21 refs. **MH-BH**—This study is directed toward a better understanding of the ccurrence and forecasting of thunderstorms as an element of general weather patterns or equences of patterns. The principal area studied is the Central United States. Following review of the literature, the climatology of thunderstorms is examined. Then, from an nalysis of many thunderstorm situations, the typical features and important synoptic patterns f areas of thunderstorm activity and their movement and life cycle are described. Finally ome of the parameters suggested by the study are incorporated into a systematic technique o aid in the preparation of forecasts of thunderstorms during a 24-hour period at Chicago. he procedure is based upon 850-mb chart types, previous occurrence of thunderstorms, and oisture and stability. A test on independent data gives good results. *Subject Headings:* **. Thunderstorm forecasting 2. Central United States.**—*Author's abstract.*

4.9–53 551.509.58

Thompson, J. C. (*U. S. Weather Bur., Wash., D. C.*), **On the operational deficiencies in ategorical weather forecasts..** *American Meteorological Society, Bulletin*, 33(6):223–226, une **1952.** fig., 2 tables, 4 refs., 8 eqs. **MH-BH**—The application of the principle of calcuated risk or mathematical expectancy to forecasting weather with reference to such operations or which categorical forecasts are required are designed necessarily for only a small range of perations. Their utility may be limited severely when the operating risks are much different rom those to which the forecasts apply. With the aid of a hypothetical example it is shown ow this deficiency can be minimized, either by making categorical forecasts so that the ptimum operating decision is provided for each user, or by providing an estimate of the robability of occurrence of critical weather and thus permitting user to make his own operating ecision. *Subject Heading:* **1. Specialized forecasts.**—*I.L.D.*

4.9–54 551.509.62:551.524.37

Koshcheev, S. M., **O termicheskom rezhime v ukrytiiakh tsitrusovykh ot morozov.** [Thermal regime in citrus frost shelters.] *Meteorologiia i Gidrologiia*, No. 7:30–31, **1952.** g., table, 2 refs. **DLC**—The author reported on special observations made during the cold inter 1949/1950 in Nikitskiĭ Botanical Garden (Crimea) on temperature conditions in helter. Trenches and ricks covered by gauze and straw pulp showed the best results in places here soil was not freezing. At that time the air temperatures dropped to −12°, −16°C, nd the soil froze down to 20 cm. *Subject Heading:* **1. Frost damage prevention.**—*N.T.Z.*

CLOUD SEEDING AND ARTIFICIAL PRECIPITATION

See also: **Cloud microphysics and artificial precipitation control** (Mortola), 4.9-161.

4.9–55 551.509.67

Gotaas, Y. and Hoem, V., **Problemet kunstig regn.** [The problem of artificial rain.] *Naturen*, 76(7):206–220, **1952.** 4 refs. **DWB**—A popular presentation of theories, methods nd chemicals as employed in cloud seeding research in the U.S.A., Australia and Europe. uthor used fire extinguishers (containing carbonic acid which changes into carbon dioxide akes of 1 mm in diameter upon passing through the narrow nozzle) with success in his cloud eeding experiments in Norway. However, like the experiments of other workers, evidence s to whether the observed precipitation that followed actually was caused by the seeding or atural causes is an open question. LANGMUIR's experiments with seven days periodical recipitation are considered to be promising. *Subject Headings:* **1. Artificial precipitation . Cloud seeding.**—*W.N.*

4.9–56 551.509.67

†Hall, Ferguson (*U. S. Weather Bureau, Wash., D. C.*), **Status of possibilities of artificial precipitation.** *American Geophysical Union, Transactions*, 33(6):866–870, Dec. 1952. 2 refs. **MH-BH**—Cloud seeding with dry ice or silver iodide is designed to increase the ice crystal content of clouds containing supercooled liquid water droplets, and thereby to permit the growth of precipitation elements (snowflakes or raindrops) by diffusion from water droplets to the induced ice crystals. Uncertainties as to need for additional ice crystals in clouds of appreciable water content make it difficult to estimate the potential value of cloud seeding in producing increased precipitation. Tests thus far have shown that it is often possible to produce slight amounts of precipitation from the bases of clouds, the rain reaching the ground on some occasions. Further research, both in the field and in the laboratory, will be needed to determine quantitatively the significance of cloud seeding in augmenting the nation's water resources. A short bibliography is furnished. *Subject Heading:* **1. Artificial precipitation.**—*Author's abstract.*

4.9–57 551.509.67

Kastens, Merritt L., **Weather to order.** *Chemical and Engineering News*, Wash., D. C., 29(12):1090–1093, March 19, 1951. photos, tables. **DWB**—A major part of this review of cloud seeding is devoted to the history of experiments conducted at General Electric Research Lab. After giving an account of these and of other attempts, the author concludes that artificial rainmaking seems to be more feasible on a broad regional basis than over a closely limited area. Legislative action taken by U. S. Congress in connection with rainmaking is discussed. *Subject Headings:* **1. Artificial precipitation 2. Cloud seeding effectiveness.**—*G.T.*

4.9–58 551.509.67:551.576.1(09)

"Project Cirrus"—the story of cloud seeding. *General Electric Review*, 55(6):8–26, Nov. 1952. **DWB**—A complete history of the famous experiments of SCHAEFER and LANGMUIR in producing ice nuclei in a deep freeze by means of dry ice pellets or other cooling divices, or by means of silver iodide smoke, and in producing modification in natural supercooled clouds by similar means. The discovery was an outgrowth of contractual work by the General Electric scientists, beginning in 1940, on precipitation status, aircraft icing and artificial smoke screens. The "cold box" experiment was made by SCHAEFER in 1946 and the first snow storm was produced Nov. 13, 1946. Project "Cirrus" began Aug. 25, 1947, although preliminary work had been done under contract with the U. S. Signal Corps, ONR and Air Force beginning Feb. 28, 1947. Results of operations in Central America, Hawaii, Puerto Rico, New Mexico and other places are outlined, and incidental physical and instrumental work described. Discovery of "periodicities" induced by periodic AgI seeding, hurricane and forest fire modification experiments, study of statistical significance of cloud seeding trials in New Mexico, modification of supercooled ground fogs, orographic thunderstorms, towering cumulus, etc., hail prevention legislation regarding rain making and other limitations to artificial rainfall operations are described. Many fine illustrations of cloud modification, instrumentation in the laboratory and on aircraft, etc., are included. *Subject Headings:* **1. Cloud seeding 2. Project Cirrus 3. Progress in weather control. I. Langmuir, I. R. II. Schaefer, Vincent J. III. Vonnegut, Bernard.**—*M.R.*

4.9–59 551.509.67

Rain-making efforts are continued in Arizona. *Engineering News-Record*, 150(2):35, Jan. 8, 1953. **DLC**—Rain making experiments which have been conducted for two years by the Salt River Valley Water Users Ass., are reported. Sixteen AgI ground generators are used in these experiments. Their operation is described. The construction cost of a generator is about $100. Although there are no data available on the effect of the experiments, it is believed that total rainfall has increased. R. J. MCMULLIN, general manager, is quoted as declaring that the Association feels justified in continuing the program. The technique applied was developed by JAKE WEST, chief hydrographer for the Association and his assistant, BORDEN GOODWIN. *Subject Headings:* **1. Artificial precipitation 2. Silver iodide smoke generators 3. Arizona.**—*G.T.*

4.9–60 551.509.67

Rain making with common salt. *Current Science*, Bangalore, 21(10):295, Oct. 1952. WB—Brief account of report by D. A. Davies of trials in East Africa (Nairobi) by Overseas ood Corporation using a mixture of 90% sea salt and 10% $CaCl_2$ ground to 0.5μ particle ze. The salt is taken aloft in balloons which burst at base of Cu clouds (gunpowder with me fuse used for release). AgI is only effective in clouds below freezing. Hygroscopic rticles may be effective above freezing, and hence, useful in seeding nonfreezing clouds in e tropics. *Subject Headings:* **1. Cloud seeding with salt 2. Rain from nonfreezing clouds East Africa. I. Davis, D. A.**—*M.R.*

4.9–61 551.509.67

†U. S. Weather Bureau, **Cloud seeding methods.** Washington, D. C., Feb. 1952. 8 p. refs. **DWB**—Seeding by dry ice, AgI and water drops (clouds above freezing) and techques now in use to initiate precipitation more effectively, are outlined. Design and evaluation experiments depends on type and thickness of clouds, wind conditions and temperature of oud base and top. Number of recent articles (1949–52) on cloud seeding are in the appended bliography. *Subject Heading:* **1. Cloud seeding techniques.**—*M.R.*

STRUCTURE AND PHYSICS OF THE ATMOSPHERE

STRUCTURE OF THE ATMOSPHERE

See also: **Radiative temp. changes in ozone layer** (Craig), 4.9–3; **Micromeritics** (Dallea-Valle), 4.9–4; **Temp. and pressure in upper atmos.** (Newell), 4.9–5; **Exploration of upper atmos.** (Whipple), 4.9–10; **Thermal aspects of travel in aeropause** (Buettner), 4.9–82; **Galactic radiation at 18.3 Mc/s** (Chain), 4.9–112; **Air pollution aspects of temp. inversion, Los Angeles** (Robinson), 4.9–122; **Air pressure and temp. variation, upper troposphere** (Isozaki), 4.9–135; **Ionizing effect in E layer near sunrise** (Lindquist), 4.9–255; **Height of atmos. electric compensation layer** (Israël), 4.9–257; **Relation: electrical—diffusion currents** (Johnson), 4.9–258; **Ionospheric conductivity and geomagnetic tides** (Lucas), 4.9–259.

4.9–62 551.510:001

Vassy, Mme. Étienne, **Terminologie concernant l'atmosphère; décisions de l'Assemblée énérale de l'U.G.G.I., Bruxelles, 1951.** [Terminology concerning the atmosphere; decisions the General Assembly of the I.U.G.G., Brussels, 1951.] *La Météorologie*, 4th Ser., No. 5:24–26, Jan./March **1952.** 2 figs., 3 refs. French, English and Spanish summaries p. 24. **WB**—The author reports atmospheric nomenclature adopted by a special committee at the russels conference. The committee included Prof. Kaplan (U. S.), Chapman (Eng.), icolet (Belgium), Sutton (Eng.), and Vassy (France). Terms agreed upon: "tropohere," "stratosphere," "mesosphere," "thermosphere," "exosphere," "tropopause," "stratouse," "ionosphere" and "chemosphere" were recommended. Brief definitions of these rms are given. The term "layer" in compounds like "D-layer" was replaced by "region." *ubject Headings:* **1. Atmospheric structure 2. Atmospheric nomenclature 3. Terminology.**—*T.*

4.9–63 551.510.41:631.41

Adel, Arthur (*Arizona St. Col.*), **Atmospheric nitrous oxide and the nitrogen cycle.** Arizona. State College, Contract AF 19(122)-198, Scientific Report, No. HA-1, Oct. 1, **1951.** 7 p. 4 figs., table, 18 refs. **DWB**—The discovery and confirmation of nitrous oxide in the tmosphere and in the soils of the earth are reviewed. The relationship of N_2O in the soil the nitrogen cycle, and the origin of atmospheric N_2O are discussed. Nitrous oxide, emerging from the soils and the seas, is regarded as a vehicle for returning nitrogen to the atmosphere. *See item* No. 3.6–62, June 1952, *MAB.*) *Subject Headings:* **1. Atmospheric composition Nitrous oxide 3. Nitrogen cycle 4. Soil chemistry. I. Arizona. State College II. Contract AF 19(122)-198.**—*Author's abstract.*

4.9–64 551.510.4

Adel, Arthur, **The grating solar spectrum between 5.6 microns and 1.9 microns.** Arizon State College, Contract AF 19(122)-198, Scientific Report, No. HA-2, Jan. 10, **1952.** 51 23 figs., 19 tables, 2 refs. **DWB**—A strong absorption line was found at 1.877μ, and this ma be the zero branch of the NO fundamental. Observations of the near infrared solar spectru made by the author at Lowell Observatory in 1940 with a grating (2400 lines/in.) are analyze and compared with data obtained by SHAW, CHAPMAN, HOWARD and OXHOLM (1951) with 7200 line 1 in. grating. There is clear indication for first time of traces of CO and CH (methane) above Flagstaff, Arizona. The map for band from 14 to 7μ disclosed N_2O an HDO (heavy water), and that between 7μ and 2μ, CH and CO as well. *Subject Heading* **1. Atmospheric composition 2. Carbon dioxide 3. Methane 4. Solar spectrum. I. Arizon State College II. Contract AF 19(122)-198.**—*M.R.*

4.9–65 551.510.4

Adel, Arthur, **Identification of carbon monoxide in the atmosphere above Flagsta Arizona.** *Astrophysical Journal*, 116(2):442–443, Sept. **1952.** fig., table, 4 refs. **DWB**- MIGEOTTE found evidence of CO in the atmosphere over Columbus, Ohio in 1948. Reexamin tion in solar-telluric spectrum made on the 4.6μ band at Flagstaff, Ariz. in 1940, by the autho shows definite CO structure, which at that time was not identifiable. The band center located at about 2142 cm^{-1} freq. MIGEOTTE and NEVIN announced CO structure in sol spectra obtained at the Jungfraujoch, Switzerland in 1950, and in April 1951 found the intensi of absorption 4 times as great as in Aug. 1950. The Flagstaff record showing that atmospher CO is planet-wide is the earliest record of atmospheric CO absorption. *Subject Heading* **1. Carbon monoxide in the atmosphere 2. Carbon monoxide spectra 3. Flagstaff, Arizona.**- *M.R.*

4.9–66 551.510.41:541.14:551.510.

Bates, D. R. (*Queen's Univ., Belfast*), **Some reactions occurring in the earth's upp atmosphere.** *Annales de Géophysique*, 8(2):194–204, April/June **1952.** table, 32 refs., e French and English summaries, p. 194. **DWB**—The photochemical reactions determining t equalibrium between N_2, N, NO and NO_2 are examined and some general deductions are mad The atomic oxygen in the upper atmosphere acts as a catalyst assisting the reformation molecular nitrogen. The origin of the N_2O in the atmosphere is discussed. It is tentative suggested that the gas may be formed in the tropopause by collision processes between O O_3, and N_2. A recent suggestion that N_2O is indirectly responsible for excitation of the Mei hydroxyl bands is investigated. The conclusion reached is that the suggestion is unacceptab *Subject Headings:* **1. Atmospheric composition 2. Photochemistry 3. Upper atmosphere.** *From author's abstract.*

4.9–67 551.510.41:537.2

Crain, Cullen M., **Dielectric constants of water vapor and atmospheric air at a frequen of 9340 megacycles.** Texas. University. Electrical Engineering Research Laborator Contract N6onr-266, Task Order 1, Report no. 9, Sept. 1, **1947.** 15 p. 8 figs., table, 6 re **DWB**—"The dielectric constant of dry air, oxygen, and water vapor have been measured at frequency of 9340 megacycles using the beam frequency method. The frequency of o stabilized oscillator is varied by introducing gas into a cavity resonator. The output of t oscillator is mixed with the output of another stabilized oscillator and the resulting bea frequency is measured." The apparatus and procedure are described. Detailed schema drawings showing the instruments are presented and results of the measurements offere *Subject Headings:* **1. Atmospheric composition 2. Water vapor 3. Dielectric constan I. Texas. University. Electrical Engineering Research Laboratory II. Contract N6or 266, Task Order 1.**—*G.T.*

4.9–68 551.510.41:551.594

Harang, Leiv (*Norwegian Defense Res., Kjeller, Norway*), **Constitution of the upper atmo phere as determined from auroral studies.** *U. S. Air Force. Cambridge Research Cent Geophysical Research Papers*, No. 11:55–66, **1952.** 3 figs., 15 refs. Discussion. **DWB**

The height distribution of the aurora in space, the spectrum of the aurora, and the nature of the luminosity curve, the pressure, density, temperature and composition of the upper atmosphere can be determined in some cases precisely, and in others approximately. Latitude effects are discussed and illustrated, and the importance of sunlit aurora for determining character of atmosphere to a height of more than 1000 km mentioned. However, the nature or cause of the aurora itself is still uncertain. *Subject Headings:* **1. Auroral physics 2. Upper atmosphere research.**—*M.R.*

4.9–69 551.510.42:546.22:620.19

Air pollution and corrosion. Important new tests show close correlation. *Smokeless Air*, 84:75–76, Winter **1952.** fig., table. **DLC**—Brief summary of researches in progress on metal corrosion by SO_2 in different climates. *Subject Headings:* **1. Sulphur content of air 2. Corrosion.**—*C.E.P.B.*

4.9–70 551.510.42:581.143(42)

Bleasdale, J. K. A. (*Univ. of Manchester*), **Air pollution and plant growth.** *Smokeless Air*, London, No. 82:154–157, Summer **1952.** 4 figs., 2 refs. **DWB**—The effect of SO_2, the principal gas polluting industrial areas, upon plant growth was investigated experimentally under controlled greenhouse conditions. The growth of rye grass was reduced by polluted air, even in concentrations not producing leaf lesions. Effects of air pollution are more severe during winter than summer. Results of fall experiments on winter survival of plants not dormant during winter are discussed. Photographs of spring cabbage plants and of rye grass grown under pure air and various degrees of polluted air are included. *Subject Headings:* **1. Atmospheric pollution effects 2. Plant growth 3. England.**—*I.L.D.*

4.9–71 551.510.42 551.555.8:551.591.1

El-Fandy, M. G., **On the physics of dusty atmospheres.** *Royal Meteorological Society, Quarterly Journal*, 79(340):284–287, April **1953.** 7 tables, 5 refs., 3 eqs. **DWB**—Frequency distributions of sizes of dust particles at Alexandria, Egypt, are compared with wind velocity and decrease of visibility. Regarding the latter as due to scattering, particles are of about the same diameter as wave length of light scattered, in agreement with KOSCHMIEDER's equation. Scatter coefficient per particle is 8/3 times cross section in dust and 4 times in duststorm. *Subject Headings:* **1. Dust 2. Dust haze 3. Alexandria, Egypt.**—*C.E.P.B.*

4.9–72 551.510.535:537

†Massey, H. S. W., **Recombination of gaseous ions.** *Advances in Physics*, London, (4):395–426, Oct. **1952.** 8 figs., 2 tables, 59 refs., 39 eqs. **DLC**—The paper summarizes present knowledge of recombination at low, e.g., ionospheric pressures. Possible processes of recombination of electrons with ions are discussed, greatest importance being attached to dissociative recombination. Methods of experimental investigation are described with emphasis on the microwave method of change of frequency of a resonant cavity containing a vessel in which the discharge can be alternately initiated and cut off. Recombination between + and − ions is briefly reviewed. Daytime formation and recombination of electrons in the ionospheric layers are discussed and a reference made to radiative recombination in the solar corona. *Subject Headings:* **1. Ionosphere 2. Recombination processes.**—*C.E.P.B.*

4.9–73 551.510.535

Osborne, B. W., **Some practical determinations of the electron content below the level of maximum ionization in the F_2 region of the ionosphere.** *Journal of Atmospheric and Terrestrial Physics*, 3(1):58–67, Jan. **1953.** 11 figs., 10 refs. **DWB**—The total numbers of electrons up to level of maximum ionization in F_2 region are calculated by J. A. RATCLIFFE's method for Slough and Singapore through 1949 and Penang, July 1949. Diurnal, seasonal and latitude variations are discussed. *Subject Heading:* **1. F_2 layer.**—*C.E.P.B.*

4.9–74 551.510.535:550.389

Rawer, K. and Minnis, C. M., **Note on the longitude effect in the F-region.** *Journal of Atmospheric and Terrestrial Physics*, 3(2):123–124, Feb. **1953.** fig., 4 refs. **DWB**—RAWER

comments on paper by MINNIS (*J. Atmosph. Terr. Physics*, 2:261, 1952). MINNIS replie
Subject Headings: **1. F layers 2. Magnetic dip.**—*C.E.P.B.*

4.9–75 551.510.535:525

Weiss, A. A., **Solar ionospheric tides in the F_2 region.** *Journal of Atmospheric an Terrestrial Physics*, 3(1):30–40, Jan. **1953.** 4 figs., 12 refs., 18 eqs. **DWB**—The equation continuity in vertical drift is integrated for the semidiurnal tide in the F_2 region and electr density contours are calculated. Effects of height on drift velocity and recombination a considered but the simple tidal equation $\frac{\partial N}{\partial t} = -\frac{\partial}{\partial z}(N\omega)$, where ω is vertical electron drift velo ity, is found to be adequate for an initial survey. *Subject Headings:* **1. Ionospheric tide 2. F2 layer.**—*C.E.P.B.*

MECHANICS AND THERMODYNAMICS OF THE ATMOSPHERE

See also: **Fog dissipation by heat diffusion from upper inversion layer** (Kushizaki), 4.9–171.

4.9–76 551.51

Yamaoka, T., **On the theory of general advection.** *Papers in Meteorology and Geophysic* Tokyo, 2(3–4):274–284, Dec. **1951.** 3 figs., 8 refs. **MH-BH**—Fundamental formulas advection are derived, more comprehensive than those published before. The thermal effe on advection and the effect of a discontinuous surface are discussed. A calculation formula f practical purposes is:

$$\delta p = \frac{1}{\theta}\left[\theta_s \delta p_s + \int_p^{p_s} \theta\left(\frac{\partial T - \Delta T}{T} - \alpha - \frac{\Delta p}{\gamma p}\right) dp\right]$$

Suffix s indicates the values at the surface, δ—density of air, p—pressure, θ—potential tem perature, T—absolute temperature, ΔT—the increase of temperature from a least quantity given to a unit mass of the air under constant pressure: $-\alpha = \frac{\partial \delta x}{\partial x} + \frac{\partial \delta y}{\partial y}$; Δp—deviation of th gradient wind. Δ—adiabatic lapse rate. *Subject Heading:* **1. Advection theory.**—*A.A.*

4.9–77 551.511:550.3

Lehnert, B. (*Royal Inst. of Technology, Stockholm*), **Experiments on non-laminar flow o mercury in presence of a magnetic field.** *Tellus*, 4(1):63–67, June **1952.** 6 figs., 10 refs **MH-BH**—Laboratory experiments show that in certain cases turbulent motion of a conductin liquid (mercury) is suppressed by an external magnetic field. Several special cases are dis cussed and the various arrangements of vortexes clearly illustrated by photographs of th laboratory models (accelerating motion, stationary motion and sudden stopping of disc) Differences are also noted for small and large velocities and when inner and outer rings ar rotated, respectively. It is stated that in cosmical applications, where scale is much greate conditions for magneto-hydrodynamic phenomena are even more favorable than in the lab oratory. *Subject Headings:* **1. Turbulent flow of liquids 2. Magnetic effects on turbulenc 3. Laboratory turbulence models.**—*M.R.*

4.9–78 551.51

Mayer, R., **Zur statistischen Mechanik der Lufthülle der Erde.** [On statistical mechanic of the earth's atmosphere.] *Archiv für Meteorologie, Geophysik und Bioklimatologie, Ser. A* 5(4):478–489, **1953.** 36 eqs. German, English and French summaries p. 478–479. **DWB**— The methods of statistical gas mechanics are applied to the atmosphere, sequences of variation of weather elements being regarded as small stochastic disturbances of a steady state. A energy function is set up by which the atmosphere is described as a whole. As a practica application the temperature gradient of the air layers near the ground is formally establishe and approximations are made to some of the quantities involved. *Subject Heading:* **1. Mechan ics of the atmosphere.**—*C.E.P.B.*

4.9–79 551.511

Watanabe, T., **On the horizontal divergence in the atmosphere (Part 1).** *Journal of Meteorological Research*, Tokyo, 4(4):129–139, July **1952.** 7 figs., 10 refs., eqs. In Japanese, English summary p. (11). **MH-BH**—A kinematic method for treating the horizontal convergence and divergence is discussed. Several equations of motion are combined into a single relation which accounts for horizontal divergence, the vertical component of relative vorticity, the northward rate of change of Coriolis parameter, the solenoid term, and the coefficient of eddy viscosity. The terms of the formula involve the Brunt-Douglas effect, curvature effect, Sutcliffe effect, the latitude effect, solenoid effect and surface friction effect. All prevailing approximate formulas representing the horizontal divergence can be derived from this formula, and generally the physical meaning of the approximation can be found, as shown in examples. *Subject Headings:* **1. Convergence 2. Divergence 3. Equations of motion.**—*From author's abstract.*

4.9–80 551.511:531.75

Sekerzh-Zen'kovich, IA. I., **K trekhmernoĭ zadache o stoiachikh volnakh konechnoĭ amplitudy na poverkhnosti tiazheloĭ zhidkosti.** [The three dimensional problem of standing waves of limited amplitude on the surface of a heavy liquid.] *Akademiia Nauk, SSSR, Doklady*, Moscow, 86(1):35–38, Sept. 1, **1952.** 3 refs., 16 eqs. **DLC**—Mathematical treatment of waves on the free surface of a heavy ideal incompressible liquid, limited only upwards by the free surface, without any external forces except gravity. *Subject Heading:* **1. Gravity waves.**—*A.A.*

4.9–81 551.511:532.596:525.3

Holmberg, E. R. R., **A suggested explanation of the present value of the velocity of rotation of the earth.** *Royal Astronomical Society, Monthly Notices, Geophysical Supplement*, 6(6):325–330, Sept. **1952.** 4 refs. **DWB**—Kelvin found that the phase of the 12 h atmospheric tide is such that gravitational attraction of the sun accelerates earth's rotation. Author calculates that at present this effect is smaller than retardation by oceanic tidal friction but considers that, over very long periods, the two may balance and that this accounts for coincidence between period of earth's rotation and a natural period of vibration of the atmosphere. *Subject Headings:* **1. Earth's rotation 2. Mechanics of the atmosphere.**—*C.E.P.B.*

4.9–82 551.511:551.510.536

Buettner, Konrad J. K. (*U.S.A.F. School of Aviation Medicine, Randolph Field, Texas*), **Thermal aspects of travel in the aeropause. Problems of thermal radiation.** (In: U. S. School of Aviation Medicine, Randolph Field, Texas, **Physics and medicine of the upper atmosphere.** Albuquerque, **1952.** p. 88–98. 3 figs., table, 16 refs.) **DLC**—In travel in the aeropause the hull temperature depends upon radiant heat exchange after the violent phase of friction has ceased, and during weightlessness, in the absence of artificial ventilation, exchange of heat by convection ceases and is carried on by conduction and diffusion. The author discusses the radiation temperature of an airplane at elevations above 120 km with the aid of a diagram giving some samples of surface temperatures of bodies in space, and variations in temperature of a white hull and in the interior of a vehicle travelling in the upper aeropause, the influence of gravity upon convection and the human heat balance under conditions of space flight. *Subject Headings:* **1. Exosphere 2. Heat exchange.**—*I.L.D.*

4.9–83 551.511:551.524.31:551.524.4

Frost, R., **Heat transfer in the lowest 100 meters of the atmosphere.** *Great Britain. Meteorological Research Committee, M.R.P.* 735 (rev.), June 30, **1952.** 20 p. 3 figs., 23 refs., 104 eqs. Mimeographed. **DWB**—Coefficient K_H of eddy conductivity of heat in layers between surface and up to 200 m in England is equated to 2^{1-m}, where $m = \frac{1}{2} - \frac{1}{3}$ near sunrise and $\frac{1}{3}$ or less near noon. This is applied to calculate diurnal temperature wave near earth's surface. Assuming that flux of heat in the ground is by molecular processes and that during daylight variation can be represented by a sine function, amplitude and lag of diurnal temperature wave are calculated for various heights and at the ground at Leafield (England, Crass) and Ismailia (Egypt), and found to agree with observations. Effect of wind speed

on time of maximum at Leafield, and the flux of heat from the ground at Kew, are also calculated. The results are also used to discuss the annual variation of temperature at Ismailia. *Subject Headings:* **1. Heat transport 2. Diurnal temperature variations 3. Temperature gradient.**—*C.E.P.B.*

4.9–84 551.511:551.551:551.524.4

Yamamoto, Gi-ichi (*Tohoku Univ.*), **Influence of stability of turbulent transfer near the ground.** *Tohoku University, Science Reports, 5th Ser., Geophysics,* 4(2):88–93, Oct. **1952.** figs., table, 8 refs., 31 eqs. **MH-BH**—The author reviews and discusses theories giving mathematical evaluations of turbulent transfer under stable and unstable conditions. Profiles of wind speed and absolute humidity are derived from the temperature profile. Theoretical results are compared with PASQUILL's observations. *Subject Headings:* **1. Stability 2. Temperature profiles 3. Turbulent exchange.**—*G.T.*

4.9–85 551.511:551.579.3:551.311.12

Ward, W. H. and Orvig, S., **The glaciological studies of the Baffin Island Expedition, 1950. Pt. IV; The heat exchange at the surface of the Barnes ice cap during the ablation period.** *Journal of Glaciology,* 2(13):158–168, April **1953.** 3 figs., table, 8 refs., 12 eqs. English and French summaries p. 158. **GB-MO**—Observations of thickness and temperature of snow cover and new ice in summer 1950 are graphed. Summer came suddenly June 23 and all snow reached melting point. Some melt water refroze at ice surface giving 12.7 cm new ice; remainder, 37 cm, ran off. Heat balance is analyzed; energy of total ablation observed (47 cm water) is made up, about two-thirds by net radiation income and one-third heat convection from air layer above surface. *Subject Headings:* **1. Heat exchange 2. Glacial runoff 3. Baffin Island.**—*C.E.P.B.*

4.9–86 551.511:551.58

Bessemoulin, J., **Confluence—diffluence, convergence—divergence.** *Journal Scientifique de la Météorologie,* 4(14):47–60, April/June **1952.** 6 figs., eqs. English and Spanish summaries p. 47. **DWB**—Author introduces the concept of the "diffluence" dif $\vec{V}=\frac{1}{V}\left(\text{div}\ \vec{V}-\frac{\partial V}{\partial s}\right)$ (usual symbols) and shows how to apply this concept to the outlining of streamlines and the problem of vertical velocities. For the computation of the barometric tendency a working equation is proposed based on the divergence of the field of vertical velocities in the layers between the pressure surfaces 1000, 850, 700, 500, 300 mb, etc. *Subject Headings:* **1. Diffluence 2. Divergence 3. Vertical velocities.**—*A.A.*

GENERAL CIRCULATION

4.9–87 551.513

What makes our weather? *Johns Hopkins Magazine,* Baltimore, Md., 4(3):4–8, 30–32, Dec. **1952.** photos, diagr. **DLC**—Many problems confronting the research meteorologist in general and the investigator of general circulation in particular, are outlined. The article refers to research on the general circulation conducted at Johns Hopkins University under the direction of G. S. BENTON (statistical treatment of atmospheric observations) and R. R. LONG (laboratory techniques). Photographs include a portrait of Dr. BENTON. *Subject Headings:* **1. Atmospheric circulation 2. Benton, George Stock.**—*G.T.*

4.9–88 551.513:532.5

Lucke, O. (*Potsdam Met. Serv.*), **Über die allgemeine Zirkulation in der unteren Atmosphäre im Lichte der Hydrodynamik.** [On general circulation of the lower atmosphere in the light of hydrodynamics.] *Zeitschrift für Meteorologie,* 6(7):202–215, July **1952.** 17 figs., 16 refs., 24 eqs. **DWB**—C.-G. ROSSBY's theory of general atmospheric circulation is explained and analyzed. Sample synoptic charts and zonal wind velocity diagrams are presented. The author suggests a few examples chosen from the field of hydrodynamics which facilitate a clear understanding of ROSSBY's theory. Earlier theories of general at-

nospheric circulation are reviewed. *Subject Headings:* **1. Atmospheric circulation 2. Hydrodynamics.**—*G.T.*

4.9–89 551.513:546.214

Kellogg, William W., **Remarks on "A quantitative analysis of two proposed mechanisms or vertical ozone transport in the lower atmosphere."** *Journal of Meteorology*, 9(6):446, Dec. **1952.** 5 refs. Reply by Richard J. Reed, p. 446–447. **MH-BH**—Referring to A. J. Reed and A. L. Julius (*Journ. Meteor.*, 8:321–325, 1951), author supports meridional circulation explanation of annual variation of ozone in high latitudes. *Subject Headings:* **1. Atmospheric circulation 2. Ozone. I. Reed, Richard J.**—*C.E.P.B.*

4.9–90 551.513:551.553.21

Emsalem, René, **Sur la mousson d'Asie.** [On the monsoon in Asia.] *Revue de Géographie de Lyon*, 28(1):57–64, **1953.** 2 figs. **DWB**—After reviewing several theories (especially the one proposed by A. Meynier) which tend to minimize the importance of monsoons in interpreting climatic features of Asia, the author analyzes the general pressure and circulation pattern of the Northern Hemisphere and finds that explanations based on the displacement of tropical fronts and of Arctic air, are not specific enough to account for certain climatic properties of the Far East. The author believes that certain problems (particularly that of the structure of air masses in summer monsoon perturbation centers, and of the role of dry air which is found in middle altitude), will only be solved if an extensive aerological network is established. *Subject Headings:* **1. Atmospheric circulation 2. Monsoon circulation 3. Southeast Asia.**—*G.T.*

ATMOSPHERIC DISTURBANCES

See also: **Initial radar echo significance** (Reynolds, Braham), 4.9–33; **Thunderstorm forecasting, Central U. S.** (Means), 4.9–52; **Storm over Exmoor, Aug. 15, 1952** (Bleasdale, Douglas), 4.9–183; **Exmoor cataclysm** (Bonacina, Ratcliffe, Marshall), **4.9–184.**

4.9–91 551.515.1:525.6

§Bowden, K. F.; Ovey, C. D., **Storm surges in the North Sea.** *Weather*, 8(3):82–84, 93, March **1953.** fig., 3 refs. **DWB**—Account of causes of tide levels higher than predicted (low pressure, wind drag) with special reference to Feb. 1, 1953. *Subject Headings:* **1. Storm tides 2. North Sea.**—*C.E.P.B.*

4.9–92 551.515.1:551.553.8

§Douglas, C. K. M., **Gale of January 31, 1953.** *Meteorological Magazine*, London, 82(970):97–100, April **1953.** 4 figs. See also p. 125–126. **DWB**—Synoptic aspects of British depression of Jan. 31, 1953, which caused North Sea floods, are discussed with charts. Geostrophic winds reached 175 mph and surface winds in Orkneys 90 mph (125 in gusts). On p. 125 associated radio fadeouts Jan. 26–30 at Weather Ship I (59°N, 19°W) are described. *Subject Headings:* **1. Extratropical cyclones 2. Gales 3. North Sea.**—*C.E.P.B.*

4.9–93 551.515.1 532.59:551.461.2

Goldsbrough, G. R., **A theory of North Sea surges.** *Royal Astronomical Society, Monthly Notices, Geophysical Supplement*, 6(6):365–371, Sept. **1952.** 4 figs., 5 refs., 14 eqs. **DWB**—Author analyzes R. H. Corkan's type E′ of North Sea surge in which a rise of level travels southwards in about 9 hrs from Dunbar to Southend, always associated with the passage of a depression eastwards across northern entrance to North Sea. He finds that there is no preliminary fall, and the rise increases in height during its passage. It is not a standing wave. *Subject Headings:* **1. Storm tides 2. North Sea.**—*C.E.P.B.*

4.9–94 551.515.1:551.509.3(234.3)

Gressel, W., **Die Bedeutung der Mittelmeerdepressionen in der alpinen Wettervorhersage.** [The importance of Mediterranean depressions in Alpine weather forecasting.] *Meteorologische Rundschau*, 6(1/2):15–19, Jan./Feb. **1953.** 4 refs. **DWB**—Rapidly developing

depressions south of Alps are important for Alpine forecasting. Two types are described: those developing in the Mediterranean from primary waves with a high trough, and those coming in from the Atlantic. Points for daily forecasting are set out and possibilities for medium and long range forecasting discussed. *Subject Headings:* **1. Barometric depressions 2. Forecasting techniques 3. Alps.**—*C.E.P.B.*

4.9–95 551.515.1

§Hauer, Hans, **Die Chronik eines Orkantiefs. Zur Entwicklung der Sturmwetterlage Ende Januar 1953.** [The history of a deep depression. On the development of the storm situation at the end of Jan. 1953.] *Naturwissenschaftliche Rundschau*, 6(4):152–153, April **1953.** 2 figs. **DWB**—Account with MSL synoptic charts of the depression which travelled from 600 km W. of Hebrides on Jan. 30 to the North Sea Jan. 31, deepening rapidly, causing shipwrecks and North Sea inundations. In Germany, there was a rapid fall of temperature and heavy drifting snow. *Subject Heading:* **1. Extratropical cyclones.**—*C.E.P.B.*

4.9–96 551.515.1:551.465

Mertins, —, **Hohe Orkandünung bei windschwachem Wetter behindert die Fischerei bei Kap Farvel.** [High swell in calm weather hindered fishery off Cape Farewell.] *Wetterlotse*, No. 54:74–77, March **1953.** fig. **DLC**—Jan. 6, 1953, a deepening depression over Davis Strait moved N. A shallow secondary E. of Greenland gave light winds but very heavy swell came from the SW. *Subject Headings:* **1. Swell 2. Barometric depressions.**—*C.E.P.B.*

4.9–97 551.515.1:525.6

Reynolds, G., **Storm-surge research.** *Weather*, 8(4):101–107, April **1953.** 4 figs., 4 refs., 2 eqs. **MH-BH**—Discussion of H. L. P. JOLLEY's formula for perturbations of sea level due to wind and pressure, and R. H. CORKAN's for North Sea surges, with application to that of Jan. 8, 1949. *Subject Headings:* **1. Storm tides 2. Sea level variations.**—*C.E.P.B.*

4.9–98 551.515.1

Rodewald, Martin, **Der Neufundland-Orkan vom 13. November 1952.** [The Newfoundland hurricane of Nov. 13, 1952.] *Wetterlotse*, No. 51:20–24, Feb. **1953.** 2 figs. **DWB**—A very deep depression (pressure at center 950 mb) developed from interaction of two weaker ones. Development is analyzed. Track turned sharp north, steered by temperature distribution, 1000–500 mb. *Subject Headings:* **1. Extratropical cyclones 2. Newfoundland.**—*C.E.P.B.*

4.9–99 551.515.1:525.63

Schweitzer, H., **Was sagen die Meteorologen zu der Strumflutkatastrophe vom 31.1./1.2.53?** [What do meteorologists say of the storm flood catastrophe of Jan. 31/Feb. 1, 1953?] *Die Umschau*, 53(5):137–138, March 1, **1953.** 3 figs. **DLC**—Rapid deepening of depression SE. of Iceland was due to interaction of a SW. current of tropical air with a powerful current of Arctic air. Behind depression pressure gradient over E. English coast gave squalls of 180 km/hr. *Subject Heading:* **1. Tidal floods.**—*C.E.P.B.*

4.9–100 551.515.1(265)

Severe storm. South Pacific Ocean. *Marine Observer*, 23(159):9–11, Jan. **1953.** fig. **MH-BH**—Account of weather with chart of tracks of 2 depressions near New Zealand, March 10–19, 1952. *Subject Headings:* **1. Barometric depressions 2. New Zealand 3. South Pacific.**—*C.E.P.B.*

4.9–101 551.515.1(492):525.6

Van Ufford, H. A. Quarles, **The disastrous storm surge of 1 February.** *Weather*, 8(4):116–120, April **1953.** fig., 2 photos, ref. **MH-BH**—An account with map of the flooding in Netherlands in 1953 due mostly to a sudden surge before high tide. Damage roughly estimated at £100 million. Quantitative forecasting system described and synoptic situation discussed. *Subject Headings:* **1. Storm tides 2. Sea level variations 3. Netherlands.**—*C.E.P.B.*

4.9–102 551.515.11

Goldie, Archibald H. R., **The storm of 14–15 January, 1952 as a moving vortex.** *Great Britain. Meteorological Research Committee, M.R.P.* 758, Sept. 26, **1952.** 4 p. 2 figs., 4 refs. Mimeo. **DWB**—Calculations are given of the vertical intensity and kinetic energy of this depression in comparison with others of a similar type, i.e., solid rotation to a maximum speed V_m at R from center, and $V.r$=const. to a further distance S. Kinetic energy per unit thickness $\pi\rho R^2V^2_m[1/4+\log_e(S/R)]$ is greatest in mid-winter when it is 4–7 times that of a W. Indian cyclone. Reduction of mean speed of jet stream by 10 knots would provide the energy and some support for this is found in profiles of upper winds on Jan. 14–15 with distance from isobaric center, but convection from surface layers is also necessary. *Subject Heading:* **1. Cyclone structure.**—*C.E.P.B.*

4.9–103 551.515.21:523.75

Palmer, C. E., **The impulsive generation of certain changes in the tropospheric circulation.** *Journal of Meteorology*, 10(1):1–9, Feb. **1953.** 6 figs., 14 refs. **MH-BH.** Also in: California. University at Los Angeles, Institute of Geophysics, Contract AF 19(122)-414, Scientific Report No. 1, June 7, **1952. DWB**—High level cyclones originate in troposphere above 30,000 ft in 10–20°N and work down sometimes to surface. The author claims that latitude shear of zonal wind at 30,000 ft, Feb.–May 1951, as a measure of cyclonic activity shows positive correlation with K_2 floccular areas and appearance of new sunspots and that the best agreement is between occurrence of solar flares and abrupt rises of temperature within 36 hrs near equator, in two layers, "kona" 300–55 mb and "Scherhag" above 55 mb. "Kona" warming is local and is attributed to absorption of radiation by a concentration of water vapor in equatorial convergence zone. Upper cyclones are said to develop on poleward side of resulting upper ridge. *Subject Headings:* **1. Hurricane formation 2. "Kona" warming 3. Solar flares. I. California University at Los Angeles. Institute of Geophysics II. Contract AF 19 (122)-414.**—*C.E.P.B.*

RADIATION AND TEMPERATURE

RADIATION

See also: **Radiative transfer** (Chandrasekhar), **4.9–2; Radiative temp. changes in ozone layer** (Craig), **4.9–3; Radiative transfer effect on vertical temp. distribution in troposphere** (Yamamoto), **4.9–123; Ions and condensation nuclei in atmos., ion balance and value of cosmic radiation at sea level** (Clay), **4.9–254; Ionizing effect in E layer near sunrise** (Lindquist), **4.9–255.**

4.9–104 551.521.7:621.396.8

Hagen, John P. and Hepburn, Nannielou, **Solar outbursts at 8.5-mm. wave-length.** *Nature*, London, 170(4319):244–245, Aug. 9, **1952.** fig., table, 9 refs. **DWB**—During May through Sept. 1951, 5 bursts of solar radiation on 8.5 m were recorded at Washington, 4 accompanying flares and sudden ionic disturbances. Records are shown. *Subject Heading:* **1. Solar radioelectric storms.**

4.9–105 551.521.7:621.396.8

Klinger, Hans Herbert, **Solare und kosmische Radiowellen.** [Solar and cosmic radio waves.] *Experientia*, Basel, 8(9):325–336, Sept. 15, **1952.** 14 figs., 3 tables, refs., eqs. English summary p. 336. **DWB**—After discussing the physics of black body radiation and its reception, author describes and illustrates solar radio radiation of 3 types—constant thermic radiation from the spot-free sun, sunspot radiation and eruptive radiation. Cosmic radio waves are also discussed and analyzed. *Subject Headings:* **1. Solar radio frequency radiation 2. Cosmic radio frequency radiation.**—*C.E.P.B.*

4.9–106 551.521.7:621.396.8

Christiansen, W. N., **A high-resolution aerial for radio astronomy.** *Nature*, London, 171(4358):831–833, May 9, **1953.** 6 figs., 5 refs. **DWB**—Description of an aerial interferometer system constructed near Sydney, N.S.W. for scanning the solar disc at a wave-

length of 21 cm. Specimen records are shown and discussed. *Subject Headings:* **1. Solar radio frequency radiation 2. Radio emanations.**—*C.E.P.B.*

4.9–107 551.521.7

Christiansen, W. N. and Hindman, J. V., **A long-period change in radio-frequency radiation from the 'quiet' sun at decimetre wave-length.** *Nature*, London, 167(4251):635–637, April 21, **1951.** 2 figs., table. **DLC**—In the Division of Radiophysics, Australia, observations of solar radiation since 1947 on 10, 25 and 50 cm. and some others indicate a decrease by 20–45% (but no change at 3 and 150 cm). This shows that the base level of effective solar temperature is subject to long term variations. *Subject Heading:* **1. Solar radio frequency radiation.**—*C.E.P.B.*

4.9–108 551.521.7:621.396.8

Piddington, J. H., **Thermal theories of the high-intensity components of solar radio-frequency radiation.** *Physical Society of London, Proceedings, Ser. B*, 66(2):97–104, Feb. 1, **1953.** 18 refs. **DLC**—Thermal brightness of solar radio-frequency radiation reaches 10^{10}–10^{11}°K in "noise storms" and outbursts, often with maximum near 100 Mc/s. Thermal theories of origin are discussed and rejected. It is considered that high-intensity components of solar and galactic radiation must be due, at least in part, to ordered non-thermal motion of electrons. *Subject Headings:* **1. Solar radioelectric storms 2. Solar radio frequency radiation.**—*C.E.P.B.*

4.9–109 551.521.7:621.396

Piddigton, J. H. and Minnett, H. C., **Solar radio-frequency emission from localized regions at very high temperatures.** *Australian Journal of Scientific Research, Ser. A, Physical Sciences*, 4(2):131–157, June **1951.** 11 figs., 5 tables, refs., 6 eqs. **MH-BH**—Solar radio-frequency radiation is analyzed into three components: a basic steady component B, a slowly varying component S, and various forms of more or less rapid fluctuations called the X component. The spectra of all three components are drawn between 600 and 24,000 Mc/s, and suggested extensions to lower frequencies are discussed. The properties of the S component are described in some detail; these include correlation with sunspot data, polarization, and the location of the sources of origin. Evidence is presented in favor of generation by thermal processes. It is suggested that the S component is due to thermal emission from localized regions at temperatures of about 10^7°K, often in the vicinity of sunspots. The radiation from a model hot region is examined in detail and the emission spectrum and polarization characteristics are derived. The results are found to compare reasonably with observation. Thermionic emission of electrons and protons would probably occur from the hot regions. These particles would travel to the earth with average velocities of a few hundred kilometers per second and may be identical with the slow corpuscular radiation whose presence is deduced from terrestrial magnetic data. *Subject Headings:* **1. Solar radio frequency radiation 2. Sunspot temperature 3. Solar spectrum 4. Polarization 5. Corpuscular radiation.**—*Authors' abstract.*

4.9–110 551.521.7:621.396

Ratcliffe, J. A., **Radio astronomy.** *Nature*, London, 169(4296):348–350, March 1, **1952.** 2 figs. **DWB**—A general account of radiation of radio frequencies from the stars and the sun. The solar intensity corresponds to a temperature in corona of about 1,000,000°K. *Subject Heading:* **1. Solar radio frequency radiation.**—*C.E.P.B.*

4.9–111 551.521.9:621.396

Bolton, J. G. and Westfold, K. C., **Galactic radiation at radio frequencies. VI. The distribution of radio stars in the galaxy.** *Australian Journal of Scientific Research, Ser. A, Physical Sciences*, 4(4):476–488, Dec. **1951.** 6 figs., refs., append. **MH-BH**—The distribution of sources of galactic noise at 100 Mc/s in the galactic plane is deduced from the data of a previous survey, assuming axial symmetry. Effects of absorption and emission within the interstellar gas are considered and found to be negligible. Away from the galactic plane, the noise contours do not conform to a single spheroidal source distribution. Consideration is

given to an isotropic contribution to the general background radiation—possibly extragalactic in origin. On the hypothesis that the background radiation is the aggregate emission from a distribution of radio stars typified by the discrete sources previously studied, estimates of the local number density, the flux from a typical radio star, and the distances of some observed discrete sources are made. These estimates are briefly discussed. *Subject Heading:* **1. Galactic radio frequency radiation.**—*Authors' abstract.*

4.9–112 551.521.9:621.396:551.510.535

Shain, C. A., **Galactic radiation at 18.3 Mc/s.** *Australian Journal of Scientific Research, Ser. A., Physical Sciences*, 4(3):258–267, Sept. **1951.** 7 figs., 15 refs., 2 eqs. **MH-BH**—Observations are described of galactic radiation at a frequency of 18.3 Mc/s over a zone of the sky centered on declination −34°. The results, expressed as equivalent temperatures, are compared with the distribution of intensity at 100 Mc/s. It is found that the temperatures are consistently much higher at 18.3 Mc/s than at 100 Mc/s but the observed ratio of maximum to minimum at 18.3 Mc/s is less than would have been obtained at 100 Mc/s using an aerial with the same directional diagram. The observations are consistent with the hypothesis that contours of equal equivalent temperature over the sky are of similar shape on the two frequencies. Peaks in the intensity distribution are observed which appear to be due to discrete sources. The observations give information concerning the attenuation of radiation passing through the ionosphere. It is found that F region absorption is higher near the critical frequency than expected, and that E region absorption is lower than expected. It is found that the collision frequency at the height of maximum ionization of the E region is not greater than 10^4 sec^{-1}, and is probably less. For the equipment used, the limit of sensitivity for the reception of radio signals was generally set by galactic noise. *Subject Headings:* **1. Galactic radio frequency radiation 2. Equivalent temperatures 3. Radiation attenuation 4. Ionospheric absorption 5. E layer 6. F layers.**—*Author's abstract.*

4.9–113 551.521.9:621.396

Covington, A. E., **Microwave sky noise.** *Journal of Geophysical Research*, 55(1):33–37, March **1950.** 4 figs., 7 refs. **MH-BH**—Radiation of 2800 mc was received from empty sky, equivalent to a temperature of ca. 50°K but with short-time bursts from zenith. Examples are described, associated with magnetic disturbances, with aurora overhead and once with a sudden ionospheric disturbance. *Subject Headings:* **1. Microwave radiation 2. Magnetic disturbances 3. Cosmic radio frequency radiation.**—*C.E.P.B.*

4.9–114 551.521.9:621.396

Piddington, J. H. and Minnett, H. C., **Observations of galactic radiation at frequencies of 1210 and 3000 Mc/s.** *Australian Journal of Scientific Research, Ser. A, Physical Sciences*, 4(4):459–475, Dec. **1951.** 6 figs., table, refs. **MH-BH**—Measurements are described of galactic radiation of 1210 and 3000 Mc/s. The results provide extensions of previous radio emission spectra by more than 2½ octaves. The intensity of radiation from near the galactic center was measured and an estimate made of the direction of the maximum of such radiation. A new "discrete source" of peculiar spectrum was discovered very close to the centre of the Galaxy. Evidence suggests that the power output of this and some other sources in the radio spectrum may exceed the total *output* of the sun. Radiation was also observed from the direction of the Crab Nebula, from the known "radio source" in Centaurus, and from the moon. Two nebulae (M 31 and NGC 7293) were investigated with negative results. The spectra of two sources are given between the limits 18.3 and 1200 Mc/s. *Subject Headings:* **1. Galactic radio frequency radiation 2. Radio emission spectra.**—*Authors' abstract.*

4.9–115 551.521.9:523.75

Reule, Alfred, **Zur thermischen Emission der Sonnenkorona im Wellenlängenbereich zehn Zentimeter bis zehn Meter.** [On thermal emission of the sun's corona in the wave region 10 cm–10 m.] *Zeitschrift für Naturforschung*, 7a(3/4):234–247, March/April **1952.** 7 figs., table, 20 refs., eqs. **DLC**—The thermal emission from the sun is calculated for various models of the corona with different assumptions as to temperature distribution. An attempt

to calculate the latter meets numerous difficulties. *Subject Headings:* **1. Sun's corona 2. Solar radio frequency radiation.**—*C.E.P.B.*

AIR TEMPERATURES

See also: **Mean temp., Central England, 1698–1952** (Manley), 4.9–40; **Thermal regime in citrus frost shelters** (Koshcheev), 4.9–54; **Heat transfer, lowest 100 m of atmos.** (Frost), 4.9–83; **Influence of turbulent transfer stability near ground** (Yamamoto), 4.9–84; **Relation: monthly mean pressure pattern and inter-diurnal variability of temp. distribution, U. S.** (Nagao), 4.9–130; **Air pressure and temp. variation, upper troposphere** (Isozaki), 4.9–135; **Upper air correlations** (Parthasarthy, Narayanan), 4.9–136; **Fog dissipation by heat diffusion from upper inversion layer** (Kushizaki), 4.9–171; **Climate in Vienna streetcars** (Dirmhirn), 4.9–220; **Barn climate** (Wächtershäuser), 4.9–223; **Upper air observation during eclipse, Sept. 12, 1950** (Kitaoka), 4.9–243.

4.9–116 551.524.36:551.501.45

Feussner, K., **Über Wert und Verwendbarkeit von Temperatur-Häufigkeitsverteilungen für die Urteilsbildung.** [On the value and applicability of temperature frequency distributions in making decisions.] *Germany. Deutscher Wetterdienst in der US-Zone, Berichte*, No. 42:440–446, 1952. 7 figs., 16 refs. **DWB**—An account of the uses of frequency distributions, illustrated by curves of temperature at Potsdam and Santiago, and comparison of Berlin with Potsdam. *Subject Headings:* **1. Temperature frequencies 2. Berlin, Germany 3. Santiago, Chile.**—*C.E.P.B.*

4.9–117 551.524.36:551.583.1

Mahrt, W. and Feussner, K., **Über Häufigkeitsverteilungen von Monats- und Jahrestemperaturmittelwerten von drei hundertjährigen Beobachtungsreihen.** [On frequency distributions of monthly and annual mean temperatures in three 100-year series.] *Germany. Deutscher Wetterdienst in der US-Zone, Berichte*, No. 42:447–451, 1952. 4 figs., 2 tables, 9 refs. **DWB**—Frequency curves for months and years are given for Berlin (1791–1940), and Berlin, Greenwich and Central Europe (1841–1940) are compared. A table of monthly means, standard deviations and skewnesses is included. *Subject Headings:* **1. Temperature frequencies 2. Europe.**—*C.E.P.B.*

4.9–118 551.524.36(43)

Manig, Marianne, **Grenzwerte der Lufttemperatur im westlichen Deutschland.** [Limits of air temperature in western Germany.] *Germany. Deutscher Wetterdienst in der US-Zone, Berichte*, No. 42:223–225, 1952. 2 charts, 5 refs. **DWB**—Two charts show absolute maxima and minima of air temperature 1881–1950. *Subject Headings:* **1. Temperature extremes 2. Germany.**—*C.E.P.B.*

4.9–119 551.524.36:551.551

Pedlow, R. H., **A note on night cooling under clear skies.** *Great Britain. Meteorological Research Committee, M.R.P.* 742 (rev.), Aug. 8, 1952. 4 p. 4 figs., table, 3 refs. Mimeo. **DWB**—Temperature and humidity gradients 1.1–106.7 m at 20-min intervals on clear nights at Rye, Sussex, were examined for all nights which showed a discontinuity in rate of cooling at 1.1 m similar to that found by W. E. SAUNDERS near London. Within 10 min of discontinuity rate of fall of temperature suddenly decreased, and vapor content increased, at all levels. Anemograms suggested that discontinuity is due to breakdown of laminar flow into turbulence soon after sunset. *Subject Headings:* **1. Nocturnal cooling 2. Turbulent exchange.**—*C.E.P.B.*

4.9–120 551.524.4:551.588.7

Chiba, T., **On the temperature distribution near the ground.** *Journal of Meteorological Research*, Tokyo, v. 4, Suppl. Number, p. 211–221, March 1952. 6 figs., 2 tables, 3 refs. In Japanese, English summary p. 334. **MH-BH**—Vertical temperature distribution was measured at 3 points (windward, in and leeward of a forest) at 20, 50 and 100 cm above and 5 cm below surface. Results are shown in graphs. At one point temperature was found at 2, 6 and

2 m and coefficient of diffusivity calculated. At 6 and 12 m it was 10^3 cm²/sec by day and 0^2 by night, at 2 m it fell to 10 at night. The thermal flux from the surface was only 0.01 al/cm²/min even on a fine day; soil temperature range varied with site and soil. *Subject Headings:* **1. Forest influences 2. Temperature profiles.**—*C.E.P.B.*

4.9–121 551.524.4(431)

*Rink, J., **Über das Verhalten des mittleren vertikalen Temperaturgradienten der bodennahen Luftschicht (1–76 m) und seine Abhängigkeit von speziellen Witterungsfaktoren und Wetterlagen. Untersuchungen mittels einer Seilaufzugsvorrichtung an den Funktürmen beim Aerologischen Observatorium Lindenberg Jahr 1950/51.** [On the mean vertical temperature gradient of the surface air layer (1–76 m) and its dependence on special weather factors and types. Investigations by means of a rope between the radio towers at the Lindenberg Aerological Observatory 1950/51.] *Germany. Deutsche Demokratische Republik. Meteorologischer Dienst, Abhandlungen*, 3(18), **1953.** 43 p. 26 figs., 33 tables, 12 refs. **DWB**—With a balloon meteorograph on an automatic hoist, temperatures were measured at 6–15 min intervals. Results, set out in numerous tables, show on fine days in May–Oct. a superdiabatic gradient 9–16 h reaching 1.4°C/100 m at 13–14 h; and inversion 19 h—morning, max. 1.85°/100 m, 3–4 h. Temperature at 76 m is higher than ground on fine days throughout the year. Effects of radiation, cloudiness, wind and air mass are discussed. Vapor pressure has maxima 4–5 and 8–9 h, main minimum 14–15 h. Physical processes relating vertical gradient to air mass and disturbances in the gradient below 76 m by high level processes such as advection are discussed. *Subject Headings:* **1. Vertical temperature gradient 2. Temperature inversions 3. Germany.**—*C.E.P.B.*

4.9–122 551.524.4:551.510.42

Robinson, Elmer (*Stanford Res. Inst., Calif.*), **Some air pollution aspects of the Los Angeles temperature inversion.** *American Meteorological Society, Bulletin*, 33(6):247–250, June **1952.** fig., 3 tables, 3 refs. **MH-BH**—The relationship between air pollution or "smog" and the temperature inversion is analyzed with the aid of the concept "inversion intensity" which permits the various elements of the inversion—temperature spread, height of base and thickness—to be considered as a unit and which is also objective. In practice the expression is $=\frac{(\Delta\theta)^2}{3+z\Delta z}$ where $\frac{\Delta\theta}{\Delta z}$ potential temperature gradient. Mean and maximum of values of inversion intensity for May through Nov. are given and a significant positive correlation found between inversion intensity and number of eye irritation complaints per day. The mean height and frequency of the inversions were studied by means of radiosonde observations, and mean inversion conditions for 1948–50 are given in a table. The frequency of inversions does not vary greatly from June through Oct. but the mean height of the base and also thickness decrease from June to Oct. and smog conditions are most frequent in fall. *Subject Headings:* **. Temperature inversions 2. Atmospheric pollution 3. Smog 4. Inversion intensity . Los Angeles, California.**—*I.L.D.*

4.9–123 551.524.4:551.521.32

Yamamoto, Gi-ichi (*Tohoku Univ.*), **Effect of radiative transfer on the vertical distribution f temperature in the troposphere.** *Tohoku University. Science Report, 5th Ser., Geophysics*, (2):64–70, Oct. **1952.** 2 figs., 3 tables, 9 refs. **MH-BH**—Values of vertical distribution of ddy diffusivity and austausch coefficient are computed for London's model on the basis of quations derived from BRUNT's formula. Radiative temperatures measured by PASQUILL p to 2 m from the ground and extrapolated up to 10 m are tabulated. Differences of net ux at each 50 cm interval up to 2 m are computed with the help of radiation chart developed y the author. The obtained flux divergences are expressed in terms of temperature changes er hour. It is found that at midday the radiative heating exceeds the observed temperature hange, but this is not necessarily the case for radiative cooling at night. Several other conlusions are drawn. Turbulent temperature exchange is discussed. *Subject Headings:* **. Terrestrial radiation 2. Vertical temperature gradient.**—*G.T.*

4.9–124 551.524.7:551.571.

Nojima, H., **Differences of temperature, humidities and vapor tensions between on th top of Mt. Tsukuba and in the free air above Tateno.** *Tateno, Japan. Aerological Observator Journal*, 5(1):49–64, March **1951.** 3 figs., 15 tables, 5 refs. English summary p. 49–5 **DWB**—Study of averages and frequencies based on over 2500 observations. The height Mt. Tsukuba Observatory is 870 m above MSL. The afternoon temperature on the top generally about 2°C higher—no annual course. The morning observations show negativ differences mountain—free air during the various seasons. The temperature differenc decreases with increasing wind velocity. Vapor pressure and relative humidity are generall higher on Mt. Tsukuba. *Subject Headings:* **1. Mountain climates 2. Mt. Tsukuba, Japan.**— *A.A.*

SOIL TEMPERATURES

See also: **Effect of straw-matting** (Daigo, Maruyama), 4.9–219.

4.9–125 551.525.4:551.584.4

Rozenfel'd, L. M. and Riabova, E. P., **Izmerenie temperatury uzla kushcheniia ozimyk kul'tur v period ikh perezimovki.** [Measurement of the stooling node temperatures of winte crops during the wintering period.] *Vsesoiuznaia Akademiia Sel'skokhoziaĭstvennykh Nau imeni V. I. Lenina, Doklady*, No. 1:26–29, **1952.** 3 figs., table, 5 refs. **DLC**—Investigation were made during the winter of 1950/1951 at Ershovo experimental point of Saratov Agr cultural Institute. Thermocouples of great sensitivity were brought into close connectio with the stooling nodes of plants for measurement of their temperatures. Insignifican differences have been found between the temperatures of stooling nodes and the soil near th nodes. This permitted the determination of the temperature of stooling nodes by measure ments of soil temperature near by. The peculiarities of the microrelief caused much greate differences, and that is why the representative characteristics of thermal conditions can b obtained with sufficient accuracy by measurements of soil temperature in many points of th field. *Subject Headings:* **1. Plant climatology 2. Microclimatology 3. Agricultural meteor ology.**—*N.T.Z.*

4.9–126 551.525.5(798

MacCarthy, Gerald R. (*U. S. Geological Survey, Wash., D. C.*), **Geothermal investigation on the Arctic slope of Alaska.** *American Geophysical Union, Transactions*, 33(4):589–593 Aug. **1952.** 4 figs., table. **MH-BH**—Preliminary results of geothermal investigations no in progress near Barrow, Alaska, indicate that, below the level to which seasonal change penetrate, ground temperatures do not fall below about −10°C. The depth of the 0° isogeotherm ranges from 670 to 1300 ft, increasing with the distance from the nearest larg body of water. Thermal disturbances caused by drilling in and through the permafros persists for many months, so that thermal readings taken in freshly drilled holes appear t have little value. Some correlation between terrain, electrical resistivity of the ground a shallow depths and ground temperatures is indicated. *Subject Headings:* **1. Geotherma investigations 2. Permafrost 3. Geothermal gradient 4. Barrow, Alaska.**—*Author's abstrac*

SEA TEMPERATURES

4.9–127 551.526.6:551.464:517.512.2(261.3

*Granqvist, Gunnar (*Finnish Inst. of Marine Res.*), **Harmonic analysis of temperature an salinity in the sea off Finland and changes in salinity.** *Finland. Merentutkimuslaito Julkaisu*, No. 152, **1952.** 28 p. 12 figs., 11 tables, 9 refs. *Finland. Havsforskningsinstitute Skrift*, No. 152. In English. **DWB**—The author repeats the harmonic analysis of the annua course of temperature and salinity of five stations in the parts of the Baltic Sea borderin Finland for the period 1921–1940. (*See* same series No. 122, 1938, where the analysis wa made for all Finnish observation stations for the period 1921–1930.) Tables of the change in harmonic constants are given. The mean temperature is slightly higher for the longer perio The time of the maximum of the annual wave is very stable. Most unstable is the increase i

alinity, first observed in the eastern part of the Gulf of Finland, later in the Bay of Bothnia. *Subject Headings:* **1. Sea temperatures 2. Salinity 3. Harmonic analysis 4. Climatic ariations 5. Baltic Sea. I. Lisitzin, Eugenie.**—*A.A.*

4.9–128 551.526.6(262)(495)

§Karapiperis, Leon N. (*Univ. of Athens*), **On the surface temperature of Greek waters.** *Geofisica Pura e Applicata*, 23:153–161, **1952.** 7 figs., 5 tables, 21 refs. **MH-BH**—Author resents mean sea-surface temperature maps for the seas surrounding Greece (4 months), iscusses the influence of surface currents, gives table for the annual variation of the sea surface emperature and the difference sea-air temperature. Influence of water temperature on ynoptic situations discussed. *Subject Headings:* **1. Sea surface temperatures 2. Greece . Mediterranean Sea.**—*A.A.*

4.9–129 551.526.6

Krügler, —, **Starke Schwankungen der Wassertemperatur am "Gamelloch."** [Great ariations of water temperature in the Gamelloch.] *Wetterlotse*, No. 51:17–20, Feb. **1953.** g. **DWB**—The Gammelloch is the mixing zone between the cold E. Greenland and warm rminger currents. Sea temperatures at intervals of a few min in 67°N, 24°W on June 27, 952, are plotted and show a well marked whirl. *Subject Headings:* **1. Sea temperatures . East Greenland Current.**—*C.E.P.B.*

WIND AND PRESSURE

PRESSURE

See also: **Dew point and barometric pressure relation to chapping of normal skin** (Gaul, Underwood), **4.9–150**; **Rain in summer** (Schwarz), **4.9–180.**

4.9–130 551.542:551.524.3

Nagao, T., **Weather group and its application (3); relation between monthly mean pressure attern and distribution of inter-diurnal variability of temperature in the U.S.A.** *Journal of Meteorological Research*, Tokyo, 4(4):140–147, July **1952.** 30 figs. In Japanese, English ummary p. (11)–(12). **MH-BH**—This investigation of relations between monthly mean ressure patterns and distribution of interdiurnal variability of temperature in the U. S. shows he following results: (1) Anticyclone area. (a) In winter, the position of maximum inter-iurnal variability coincides roughly with the center of anticyclone area. (b) In summer, nterdiurnal variability of temperature has its max. in the northern part of the U. S., and the rge value extends toward the center of the anticyclone. (c) In the other seasons, the situation an intermediate one between (a) and (b). Conclusions of a similar type are deduced for the 2) cyclone area, (3) trough line and (4) wedge line. *Subject Headings:* **1. Pressure patterns Interdiurnal temperature variations 3. Anticyclones 4. United States.**—*From author's bstract.*

4.9–131 551.542:629.13

Peel, R., **The use of pressure pattern flying by Trans-Canada Airline.** *Institute of Navigation, London, Journal*, 6(1):15–28, Jan. **1953.** 9 figs., 2 refs. **DWB**—Describes the ethods and instruments (templates, etc.) used to determine the most economical flight route cross Atlantic, and applications in flight procedure including preparation of upper air charts uring flight. *Subject Heading:* **1. Pressure pattern flying.**—*C.E.P.B.*

4.9–132 551.542:629.13

Williams, Donald G., **Anyone can fly a pressure pattern.** *Aero Digest*, 62(6):30–31, 2–78, June **1951.** diagrs., table. **DLC**—Elements of "minimal flight" technique as applied y the Military Air Transport Service are discussed in general terms, their advantages pointed ut, examples quoted and basic principles illustrated through simple explanatory charts. A ble of "K" values for various latitudes is presented. *Subject Heading:* **1. Pressure pattern ying.**—*G.T.*

4.9–133 551.547.2

Crysler, Richard D. (*Tokyo, Weather Central U. S. Air Weather Soc.*), **Note on the influence of temperature in the reduction of station pressure under a strong temperature inversion.** *U. S. Air Force. 2143D Air Weather Wing Technical Bulletin*, No. 8:3–5, Jan. **1952.** diagr. **DWB**—Tests were made of two formulas for reduction to sea level pressure of a station at 2165 ft elevation, assuming 950 mb station pressure, temperature of −40°C and various lapse rates, and radiation conditions to see what magnitude of error would be possible under most extreme conditions encountered in the forecast. It was found that maximum error would be 16.9 mb but usual range of error would be 8 or 9 mb under worst conditions, and less when warmer air masses or lower elevations are involved. Station pressure changes are not at all affected by this reduction error. *Subject Headings:* **1. Pressure reduction 2. Synoptic analysis 3. Sea level pressure errors 4. Temperature inversions.**—*M.R.*

4.9–134 551.547.2

Leonov, M. P., **O privedenii davleniia k urovniu moria na meteorologicheskikh stantsiiakh, vysota kotorykh znachitel'na.** [Reduction of pressure to sea level at high altitude meteorological stations.] *Meteorologiia i Gidrologiia*, No. 5:37–40, **1952.** 2 figs., 2 tables. **DLC**—The formula for pressure reduction used at present in the U.S.S.R. provides the value of lapse rate as 0.6° per 100 m of altitude. The author analyzed sources of possible errors and concluded that the present equations can be used only for meteorological stations at altitudes lower than 300 m. For stations up to 700 m the calculation can be made by using aerological data. The pressure observations at stations near 1000 m and more must be used without reduction for analysis of 850 mb isobaric surface. The graphs and table are constructed on the basis of observations made in Siberia and Central Asia. They are intended for more accurate calculation of pressure reduction for cases of different lapse rate. *Subject Heading:* **1. Pressure reduction.**—*N.T.Z.*

4.9–135 551.547.3:551.524.7:551.510.5

Isozaki, I., **Variation of air pressure and temperature in upper troposphere (2nd report); vertical structure of trough.** *Journal of Meteorological Research*, Tokyo, 4(4):148–156, July **1952.** 9 figs., 5 refs. In Japanese, English summary p. (12). **MH-BH**—The author investigates the trough structure using data from Mt. Fuji. Some results on the baroclinic phenomena of the following three types are given: (1) Upper-layer type. The cause of variation of this type is in the upper troposphere and its character is almost barotropic. (2) Lower layer type. This type is the case of negative correlation between pressure and temperature. The cause of variation is in the lower troposphere. (3) Combined type. It appears in connection with the passage of a developed cyclone. In this case the lower trough coincides with the upper trough. This type appears to be closely related with cyclone development. Examples are given for each type. *Subject Headings:* **1. Upper air pressure variations 2. Upper air temperature variations 3. Trough structure.**—*Author's abstract.*

4.9–136 551.547:551.524.7(54)

Parthasarathy, S. and Narayanan, J., **Some upper air correlations.** *Indian Journal of Meteorology and Geophysics*, Delhi, 3(1):70, Jan. **1952.** 3 tables, ref. **MH-BH**—On the basis of all the radiosonde ascents for the months of Jan., April, July and Oct. for 1947–1949, the authors worked out separately for Poona and New Delhi correlation coefficients and regression equations connecting the thickness of the 500–300 mb layer with thickness of the 700–500 mb layer and temperature of 500 mb with that of 300 mb. Means and standard deviations, correlation coefficients and regression equations are given in tables. Coefficients of correlation and regression coefficients are compared with those obtained in England and except for the high correlation coefficient for H_{33} and T_3 at New Delhi the other correlation coefficients for India are markedly less than for England. *Subject Headings:* **1. Upper air pressure 2. Upper air temperatures 3. Pressure-temperature correlations 4. India.**—*I.L.D.*

WIND

See also: **Planimetric method of measuring velocity of upper westerlies** (Robertson, Cameron), 4.9–30; **Statistical analyser of frequency distribution of atmos.** (Kano, Kawano, Watanabe), 4.9–46; **Physics of dusty atmos.** (El-Fandy), 4.9–71; **Confluence-diffluence, convergence-divergence** (Bessemoulin), 4.9–86; **Asiatic monsoon** (Emsalem), 4.9–90; Gale, Jan. 31, 1953 (Douglas), 4.9–92; **Night cooling under clear skies** (Pedlow), 4.9–119.

4.9–137 551.551:551.557:621.396

Megaw, E. C. S., **Waves and fluctuations.** *Institution of Electrical Engineers, London, roceedings,* Pt. 3, 100(63):1–8, Jan. **1953.** 9 figs., 14 refs., 2 eqs. **DLC**—This interesting cture includes sections on turbulence and fluctuations of refractive index, wave propagation rough slightly inhomogeneous media, intensity fluctuations or scintillation, and long-range opagation of radio waves by atmospheric scattering. Agreement between theoretical lculation and observations is good. *Subject Headings:* **1. High level turbulence 2. Radio ave propagation.**—*C.E.P.B.*

4.9–138 551.551:551.554

Woods Hole Oceanographic Institution, **The effect of vertical wind shear on turbulent nsfer.** Contract N6onr-27702(NR-082-021), Technical Report No. 11, July **1951.** 16 p. aphs, refs., eqs. **DWB**—A simple solution of the equations for turbulent heat transfer nen the wind increases with elevation, and the error which would be involved if it is assumed at the wind speed is constant (for some mean between the surface and top of layer) is given. is shown graphically that if added weight is given to the lower layers in selecting the mean evation, a close approximation may be obtained by using constant wind in equations. *Subject eadings:* **1. Turbulent transfer of heat 2. Wind shear. I. Haurwitz, Bernhard II. Stern, elvin E. III. Contract N6onr-27702-(NR-082-021).**—*M.R.*

4.9–139 551.554:551.481

McFarland, A. M., **Shear stress on a lake surface.** *Johns Hopkins University, Laboratory Climatology, Seabrook, N. J., Interim Report,* No. 15:16–24, Sept. **1951.** 4 figs., 2 tables, refs., eqs. *See also:* Interim Report 14. **DWB**—A description of the observation site and a view of previous investigations are given. The observations of the author give the shear ress $\tau = 0.24$ dynes/cm^{-2} at a wind velocity of 412 cm/sec^{-1} at a height of 200 cm. *Subject eading:* **1. Shear stress over lakes.**—*A.A.*

4.9–140 551.554

Panofsky, H. A., **A comparison of different types of stress measurement.** *Royal Meteorogical Society, Quarterly Journal,* 78(377):411–414, July **1952.** tables, 10 refs., 8 eqs. **DWB**—ind stresses computed from mean wind speeds at 11.4, 45 and 125 m at Brookhaven and from e speed at 11.4 m and roughness length, were compared with Reynolds stresses at 109 m on days. Results varied from 1–10 dynes/cm^2 but only the 11.4 m results agreed well numerally with the Reynolds stress. *Subject Headings:* **1. Wind shear 2. Brookhaven, New York.** *C.E.P.B.*

WIND EFFECTS

See also: **Micromeritics** (DalleaValle), 4.9–4; **Clouds, wind, water** (Curry), 4.9–173; **Soil erosion by snow scouring** (Hempel), 4.9–189.

4.9–141 551.556:551.46.018

Bowden, K. F., **Measurement of wind currents in the sea by the method of towed electodes.** *Nature,* London, 171(4356):735–737, April 25, **1953.** fig., 4 refs., 3 eqs. **DWB**—stream of water flowing through earth's magnetic field has an induced e.m.f. This principle applied to determine surface currents in deep water by towing two electrodes connected by bber covered cable 100 yards long. Drift currents in 47°50′N, 12°30′W computed in this ay are shown. Values were about $\frac{2}{3}$ those computed by Ekman's theory. *Subject Headings:* **Wind driven currents 2. Current meters.**—*C.E.P.B.*

4.9–142 551.556:532.593:551.4

Krylov, IU. M., **O mekhanizme rosta vetrovykh voln.** [The mechanism of the growth of wind waves.] *Meteorologiia i Gidrologiia*, No. 5:49–51, **1952.** 2 figs., 6 refs. **DLC**—The problem of the growth of wind waves is an important item for the theory of forecasting. The author analyzed mathematically the distribution of wind energy near the water surface for various phases of wave evolution. An unstable air flow near the water surface is decaying into separate vortexes forming small waves. A further increase of wind velocity causes circumfluent flow of air upon the sea waves. Two types of pressure originate: normal pressure directed perpendicularly to the wave profile and the second form of pressure directed tangentially to the profile. They are the sources of posterior wave modifications and growth. *Subject Headings:* **1. Wind waves 2. Wave mechanics.**—*N.T.Z.*

4.9–143 551.556:551.4

Longuet-Higgins, M. S. (*Trinity College, Cambridge*), **On the statistical distribution of the heights of sea waves.** *Journal of Marine Research*, 11(3):245–266, **1952.** 9 figs., 2 tables, refs., 73 eqs. **DWB**—The statistical distribution of wave-heights is derived theoretically on the assumptions (a) that the wave spectrum contains a single narrow band of frequencies, and (b) that the wave energy is being received from a large number of different sources whose phases are random. Theoretical relations are found between the root mean-square wave height, the mean height of the highest one-third (or highest one-tenth) waves and the most probable height of the largest wave in a given interval of time. There is close agreement with observation. *Subject Heading:* **1. Wave heights.**—*Author's abstract.*

4.9–144 551.556:551.4

Neumann, Gerhard, **Über die komplexe Natur des Seeganges. 2 Teil. Das Anwachsen der Wellen unter dem Einfluss des Windes.** [On the complexity of the state of the sea. Pt. 2. The growth of waves under the influence of wind.] *Deutsche Hydrographische Zeitschrift*, 5(5–6):252–277, **1952.** 10 figs., 13 refs., 75 eqs. German, English and French summaries p. 252–253. **DWB**—From interaction of wind and growing waves, and dissipation of wave energy by turbulence, relations of wave dimensions to wind velocity, fetch and duration are calculated and expressed in a series of diagrams. These can be used to forecast wave period and spectrum and mean and maximum wave heights. *Subject Heading:* **1. Wave heights.**—*C.E.P.B.*

4.9–145 551.556:525.6

Tomczak, Gerhard, **Der Einfluss der Küstengestalt und des vorgelagerten Meeresboden auf den windbedingten Anstau des Wassers an der deutschen Nordseeküste zwischen Ems und Elbe.** [The influence of coastal form and neighboring sea floor on the accumulation of water by the wind on the German North Sea coast between Ems and Elbe.] *Deutsche Hydrographische Zeitschrift*, 5(5–6):277–284, **1952.** 2 figs., 4 tables, 3 refs. German, English and French summaries p. 277. **DWB**—Taking Cuxhaven as a standard, high water levels at a number of ports are calculated for 16 wind directions and critical directions graphed. This can be used to forecast dangerous storm surges, illustrated by levels on Nov. 6, 1952 (wind WNW–NW, force 9). *Subject Headings:* **1. Wind effects 2. Tidal floods.** *-C.E.P.B.*

4.9–146 551.556:532.5

Van Dorn, William G., **Wind stress over water.** California. University. Scripps Institution of Oceanography, Contract AF 19(122)-413, AF Technical Report No. 1, Nov. 20, **1952.** 23 p. 14 figs., refs., 45 eqs. p. 22–23. **DWB**—The wind-induced slope of the surface of an 800-foot model-yacht pond has been measured to a relative accuracy of 5×10^{-7}. This slope, which is proportional to the sum of the surface and bottom stresses, is shown to be the result of two effects: first, a tangential "friction" drag, which is invariably present and proportional to the square of the wind speed; and second, a "form" drag, which occurs only after the wind has increased above a certain critical value. The second effect is related to surface waves. Application of a detergent to the water eliminates both waves and form drag. The surface current was proportional to the wind speed and independent of waves. The slope increased with heavy rain, and a theoretical model is proposed which adequately predicts the

bserved increase. The present study was modeled closely after KEULEGAN's experiments in a) foot laboratory channel. The results of the two studies agree quantitatively. *Subject leadings:* **1. Water surface slope 2. Wind stress 3. Wave mechanics 4. Wind waves. California. Univ. Scripps Institution of Oceanography II. Contract AF 19(122)-413.**—*uthor's abstract.*

4.9–147 551.556:551.461.2

Wyrtki, Klaus, **Der Einfluss des Windes auf den mittleren Wasserstand der Nordsee nd ihren Wasserhaushalt.** [The influence of the wind on the mean water level of the North ea and its water economy.] *Deutsche Hydrographische Zeitschrift*, 5(5/6):245–252, **1952.** 3 figs., table, 10 refs. German, English and French summaries p. 254. **DWB**—From a etwork of points Faroes–S. Norway-SW Ireland–Emden winds and level and transport of ater in Channel and North Sea are calculated. Results are shown in a series of charts nowing change of water level and volume from one month to the next in relation to vector inds in the two months, and a schematic wind and water-transport rose. *Subject Headings:* **Wind effects 2. Water level variations 3. North Sea.**—*C.E.P.B.*

4.9–148 551.556.1:525.63:627.52

British, Dutch rush flood repair work. *Engineering News-Record*, 150(7):47, Feb. 12, **953. DWB**—An early report on the breach of Britain's and the Netherlands' sea defenses y gale-driven floods. Damage caused is roughly estimated and some engineering problems re discussed. A map shows approximate extent of the stricken areas. *Subject Headings:* **Flood control 2. Flood damage.**—*G.T.*

4.9–149 551.556.1:634.9

Steven, H. M., **Storm damage to woodlands in Scotland on January 31, 1953.** *Nature*, ondon, 171(4350):454–456, March 14, **1953. DWB**—North of Tay and east of Inverness inds with hourly speeds up to 63 m.p.h. and gusts up to 101 m.p.h. blew down trees estimated s 35 million cubic feet of timber, mostly Scots pine over 40 ft high. Risk of insect epidemics nd salvage problems discussed. *Subject Heading:* **1. Wind damage to forests.**—*C.E.P.B.*

AQUEOUS VAPOR AND HYDROMETEORS

HUMIDITY

See also: **Relation: relative humidity and temp.—dew point difference** (Gogoleva, Dobryshman), 4.9–26; **Differences of temp., humidity and vapor pressure between top of Mt. Tsukuba and free air above Tateno** (Nojima), 4.9–124.

4.9–150 551.571:551.54:551.586:612

Gaul, L. Edward and Underwood, G. B., **Relation of dew point and barometric pressure chapping of normal skin.** *Journal of Investigative Dermatology*, Baltimore, 19(1):9–19, ıly **1952.** 4 figs. (1 fold.), 2 tables, 6 refs. Abstracted from reprint. **DWB**—The relationip between chapping of normal skin and weather was investigated on 8 subjects over a period f one year. Low dew points were clearly associated with high incidence of chapping; periods f low barometric pressure and sudden rise in pressure preceded each chapping incident; a receding high dew point and low barometric pressure suddenly changing to a low dew point nd high barometric pressure constituted a meteorological pattern associated with chapping; nd a high pressure required a lower dew point and a low dew point required a high pressure o be followed by chapping. High wind velocity, and rapid evaporation of water from the kin increased incidence of chapping. *Subject Headings:* **1. Skin chapping 2. Humidity ffects 3. Atmospheric pressure effects.**—*I.L.D.*

4.9–151 551.571:699.87

†National Research Council, Wash., D. C. Building Research Advisory Board, **Consensation control in buildings as related to paints, papers and insulating materials, Feb. 26–27, 952.** *National Research Council, Wash., D. C. Building Research Advisory Board, Research*

Conference Report, No. 4, Sept. **1952.** 118 p. illus., 86 refs. **DWB**—Architects, builders, engineers, lumber dealers and painting contractors participated in this conference and in the panel discussions and papers. They discussed the technological problems presented by condensation in residential buildings, with reference to building materials for construction, paints and paint films, building papers; the relationship of climate to condensation; and means for coping with condensation. The individual papers presented are as follows: "Technological aspects of condensation control in building structures" by C. R. LUND; "The movement of moisture in building materials" by J. D. BABBITT; "Water permeability of paint materials for wall construction" by E. J. DUNN; "Paper and foil films" by FLOYD NEWKIRK and "Influence of construction methods and materials on condensation problems" by L. V. TEESDALE. The panel discussions and general discussions which are given in full, emphasized various points taken up in the papers and also included a discussion of future technical and education opportunities and research problems. Extensive bibliography on condensation in building is given. *Subject Headings:* **1. Condensation control 2. Condensation effects 3. Deterioration of building materials.**—*I.L.D.*

4.9–152 551.571:640

Spencer-Smith, J. L., **Moisture relations and fibre processing.** *Nature*, London 170(4331):732–734, Nov. 1, **1952. DWB**—Account of discussion at British Association J. A. MATTHEW spoke on amount of water absorbed by textile fiber in relation to air temperature and humidity, and effect of humidity on processing flax. A. B. D. CASSIE showed how interaction of fibers with water vapor adds to comfort of clothing by liberating heat on passing from warm dry to cold damp air. *Subject Headings:* **1. Humidity effects 2. Textiles I. Matthew, J. A. II. Cassie, A. B. D.**—*C.E.P.B.*

4.9–153 551.571:551.586:616.2

Waddy, B. B., **Climate and respiratory infections.** *Lancet*, 263:647–677, Oct. 4, **1952** 2 figs., 5 tables. See also p. 668–669. **GB-MO**—In Gold Coast and other tropical regions outbreaks of cerebrospinal meningitis, lobar pneumonia, etc. tend to occur with low absolute humidity (roughly below 10 g/m³). In England respiratory infections are worst in late winter and spring, which is also period of lowest absolute humidity. *Subject Headings:* **1. Medical climatology 2. Humidity effects.**—*C.E.P.B.*

4.9–154 551.571.3:631.56

Henderson, S. M. (*Agri. Engr. Div., Univ. of California, Davis*), **A basic concept of equilibrium moisture.** *Agricultural Engineering*, 33(1):29–32, Jan. **1952.** 7 figs., table, 26 refs., 12 eqs. **DLC**—An empirical formula for the equilibrium moisture (approached value of moisture content in stored materials, determined by the relative humidity and temperature of the interstitial air) or various farm products is given, equilibrium moisture curves drawn up and constants tabulated. The problem of equilibrium moisture is also approached by using Gibbs's thermodynamic absorption formula. The theoretical approach gives an expression identical with the empirical formula. *Subject Headings:* **1. Crop moisture content 2. Crop storage 3. Indoor climates 4. California.**—*G.T.*

EVAPORATION

4.9–155 551.573

Church, J. E.; Wilson, Walter; Kehrlein, Oliver, **Further on the evaporation and melting of snow at high altitudes.** *Journal of Glaciology*, 2(13):233–235, April **1953. GB-MO**—Discussion of F. MATTHES' view of importance of ablation of snow at high altitudes, daily rate on Mt. Rose and Greenland being estimated at 0.2 inch or more. *Subject Heading:* **1. Ablation.**—*C.E.P.B.*

4.9–156 551.573

Deij, L. J. L., **Een nieuwe methode ter bepaling vande verdamping van het vodemwater.** [A new method to determine the evaporation of water in the soil.] (In: Nederlandse Centrale Organisatie voor Toegepast-Naruurweterschappelijk Onderzoek. Commissie voor Hydrologische Onderzoek, **Verslagen Technische Bejeenkomste, 1–6, 1946–1950.** Pub. 1952. p.

8–19. In Dutch, English summary p. 279–281; French summary p. 307–309. **DWB**—Short iscussion. The "new" method is the measurement of humidity and wind gradient near the ırface and the computation of evaporation, applying the theory of turbulent exchange. Exerimental research similar to that done by THORNTHWAITE and HOLZMAN (1939) planned for ıe Rottegatspolder. *Subject Headings:* **1. Evaporation measurement 2. Turbulent transfer f moisture 3. Rottegatspolder, Netherlands.**—*A.A.*

4.9–157 551.573:633.61

*Fuhriman, D. K. (*Wisc. Univ., Dept. Hydraulics*) and Smith, R. M. (*Puerto Rico Agri. Exp. Station*), **Conservation and consumptive use of water with sugar cane under irrigation n the south coastal area of Puerto Rico.** *Journal of Agriculture of the University of Puerto Rico*, Rio Piedras, 35(1):1–47, Jan. **1951.** 13 figs., 9 tables, 19 refs. **DWB**—Detailed data re given for soil moisture, rainfall and consumptive use (evapotranspiration). Soil moisture ension curves discussed and the effective rainfall in fields evaluated. Evapotranspiration ormula proposed for ample water supply: $E = kTS\left(1+\frac{W}{200}\right)$. E—evapotranspiration (inches er month), T—average temperature (°F), S—hours of sunshine per month, W—wind velocity miles per day) and k—constant, may be a function of the relative humidity. No verification. *ubject Headings:* **1. Evapotranspiration 2. Soil moisture 3. Agricultural meteorology . Puerto Rico.**—*A.A.*

CONDENSATION NUCLEI

See also: **Micromeritics** (DalleaValle), **4.9–4**; **Electron microscope study of snow crystal nuclei** (Nakaya), **4.9–191.**

4.9–158 551.574.1

*Dessens, Henri; Lafargue, C. and Stahl, P., **Nouvelles recherches sur les noyaux de ondensation.** [New research on condensation nuclei.] *Annales de Géophysique*, 8(1):21–32, an./March **1952.** 7 figs., 29 refs. English summary p. 21. **DWB**—Condensation nuclei ound in samples taken from clouds and fog at various geographic locations (such as the tlantic region, Greenland, Puy-de-Dôme, etc.) have been analyzed with an electron microcope. Data on their size distribution and chemical composition are presented. Photoicrographs showing various types of nuclei are reproduced. It was found that all natural uclei are composed of the following elements: NaCl; NaCl plus 40% of $MgCl_2$; sea water. Methods of sampling and of microscopic measurement are mentioned. *Subject Headings:* **. Condensation nuclei 2. Drop size distribution.**—*G.T.*

4.9–159 551.574.1:551.594.1

Gillespie, T., **The effect of the electric charge distribution on the ageing of an aerosol.** *Royal Society of London, Proceedings, Ser. A*, 216(1127):569–582, Feb. 24, **1953.** 7 figs., tables, 15 refs., 31 eqs. **DWB**—Smoke chamber experiments showed that decrease in particle number (n/cc) with time was given by: $-dn/dt = kn^2 + \beta n$. Values of coagulation onstant k were determined for various powders and calculated on basis of effect of electric harges on rate of coagulation due to Brownian movement, differences in gravitational settling, nd turbulence. It is shown that electric charges on particles of an aerosol may appreciably ffect rate of coagulation. *Subject Headings:* **1. Aerosols 2. Electrical charges.**—*C.E.P.B.*

4.9–160 551.574.1

*Menzl, Oswald (*Kindling, Kr. Eichstätt, Bayern*), **Kernzählungen auf dem Donnersberge.** [Nuclei counting on the Donnersberg.] *Naturforschende Gesellschaft, Zurich, Vierteljahresschrift*, 93(3):204–214, Sept. 30, **1948.** 3 figs., 8 tables, 22 refs. **DLC**—Report on measureıents of the number of nuclei made from April 17 to June 24, 1943. Results are given for ifferent air masses and the diurnal course is shown as well as the relationship to sunshine, ind direction, visibility, moisture, cloudiness and height. *Subject Headings:* **1. Nuclei count . Donnersberg, Czechoslovakia.**—*A.A.*

4.9–161 551.574.1:551.509.67

Mortola, Luisa Sciarra (*Institute of Geophysics, Genoa*), **La microfisica delle nubi ed il controllo artificiale delle precipitatione.** [Microphysics of clouds and artificial control of precipitation.] *Geofisica e Meteorologia*, Genoa, 1(2):6–8, Jan./Feb. **1953.** fig. **DWB**—A semi-technical review of the role of condensation nuclei, supercooling and particle size in natural and artificial precipitation processes, including notes on the work of H. ISRAËL, H. KÖHLER, W. FINDEISEN, BOWEN, PETTERSSEN, HOUGHTON and others. *Subject Headings:* **1. Cloud physics 2. Artificial precipitation 3. Cloud seeding.**—*M.R.*

4.9–162 551.574.1

Ogiwara, Sekiji (*Tohoku Univ.*), **Crystallization and freezing of aqueous condensation nucleus.** *Tohoku University, Science Reports, 5th Ser., Geophysics*, 4(1):24–30, June **1950.** 3 refs., 32 eqs. **MH-BH**—The purpose of this paper is to consider the processes taking place in hygroscopic condensation nucleus as a function of change of the meteorological conditions of the surrounding air, namely: 1) the increase of diameter as a function of humidity. Transformation into a cloud or fog particle. 2) The crystallization of the hygroscopic substance beginning at sufficiently low humidity and 3) the freezing of the aqueous nucleus when at a temperature lower than that of bulk water. *Subject Headings:* **1. Condensation nuclei 2. Hygroscopic nuclei.**—*W.N.*

4.9–163 551.574.1

Ogiwara, S. and Okita, T. (*Tohoku Univ., Sendai, Japan*), **Electron-microscope study of cloud and fog nuclei.** *Tellus*, 4(3):233–240, Aug. **1952.** 24 figs., 2 tables, 7 refs. **MH-BH.** Also in: *Meteorological Society of Japan, Journal*, 30(4):132–140, April **1952.** In Japanese. **DWB**—Droplets of clouds on a mountain and of fog in an urban area were captured and the form, nature and size of their nuclei were studied by means of an electron-microscope and by a chamber of constant humidity. These nuclei have similar form and nature to the hygroscopic particles in haze and to the artificially produced combustion particles. No sea-salt nuclei were found in our observations, therefore sea-spray appears to be an insignificant source of condensation nuclei. It was found that both the cloud and the fog nuclei originated in combustion products which were in the mixture of hygroscopic and non-hygroscopic substances and that the greater part of the nuclei did not contain pure sulfuric acid. *Subject Headings:* **1. Cloud nuclei 2. Fog nuclei.**—*Authors' abstract.*

4.9–164 551.574.41:621.316.9

Meyer, H., **Höhere Betriebssicherheit von Hochspannungsnetzen. Entstehung und Vermeidung der Erdschlusswischer.** [Improved safety of high-voltage lines. Occurrence and avoidance of shorts to earth.] *Umschau*, 53(8):231–232, April 15, **1953.** 3 figs. **DWB**—Shorts to earth show a very high peak frequency at sunrise especially in summer, mainly caused by dew. Shorts at ends of networks when insulators are dry are attributed to earth currents. Types of insulators are illustrated. *Subject Headings:* **1. Dew effects 2. Electrical engineering.**—*C.E.P.B.*

4.9–165 551.574.7:629.135

Gelder, Thomas F., Lewis, James P. and Koutz, Stanley (*Lewis Flight Propulsion Lab., Cleveland, Ohio*), **Icing protection for a turbojet transport airplane: heating requirements, methods of protection, and performance penalties.** *U. S. NACA, Technical Note*, 2866, Jan **1953.** 57 p. 15 figs., 23 refs. **DWB**—The heating requirements for several methods of icing protection for a typical turbojet transport airplane operating over a probable range of icing conditions are evaluated, and the airplane performance penalties associated with providing this protection from various energy sources are discussed. Continuous heating requirements and airplane penalties for the turbojet transport are considerably increased over those for lower-speed aircraft. Heating requirements can be substantially reduced by use of a cyclic de-icing system and choice of the proper energy source. *Subject Headings:* **1. Icing of aircraft 2. Icing prevention.**—*NACA abstract.*

4.9–166 551.574.7:629.13

*Lewis, William and Bergrun, Norman R. (*Ames Aeron. Lab. Moffett Field, Calif.*), **A probability analysis of the meteorological factors conductive to aircraft icing in the United States.** *U. S. NACA, Technical Note,* 2738, July **1952.** 93 p. 27 figs., 11 tables, 17 refs., eqs. **DWB**—Meteorological icing data obtained in flight in the United States are analyzed statistically and methods are developed for the determination of (1) the various simultaneous combinations of the three basic icing parameters (liquid-water content, drop diameter, and temperature), which would have equal probability of being exceeded in flight in any random icing encounter, and (2) the probability of exceeding any specified group of values of liquid-water content associated simultaneously with temperature and drop-diameter values lying within specified ranges. *Subject Headings:* **1. Icing of aircraft. I. U. S. NACA.**—*Author's abstract.*

FOG

4.9–167 551.575.1:551.508.823

Aerological Observation Party, **Results of captive radiosonde observation.** *Journal of Meteorological Research,* Tokyo, v. 4, Suppl. Number, p. 55–60, March **1952.** In Japanese, English summary p. 324. **MH-BH**—Numerous observations of temperature and humidity in fog at short intervals up to 400–500 m are shown in tables and graphs. Fog or very low stratus was mostly 150–250 m thick; where secondary layers existed they were generally thin and between 300–400 m. In the fog layer temperature was isothermal or increased upwards. *Subject Headings:* **1. Fog depth 2. Inversions 3. Japan.**—*C.E.P.B.*

4.9–168 551.575.1:551.43

Kinoshita, S., **The drop size distribution of a mountain fog.** *Journal of Meteorological Research,* Tokyo, v. 4, Suppl. Number, p. 235–238, March **1952.** 4 figs., 2 refs. In Japanese English summary p. 336. **MH-BH**—Temperature, drop diameter x and liquid water content F were measured on Mt. Niseko, Hokkaido, 50, 250 and 500 m above base of a young cloud. Peak radius 5–20μ increasing with height. Observations fit BEST's formula $1-F=\exp[-(x/a)^n]$. *Subject Headings:* **1. Fog formation 2. Orographic effects 3. Japan.** —*C.E.P.B.*

4.9–169 551.575.1

Koenuma, K. (*Sapporo Dist. Cent. Met. Obs.*), **On the stability and variation of fog particles.** *Geophysical Magazine,* Tokyo, 23(4):373–377, May **1952.** fig., 11 eqs. **MH-BH**—Assuming that fog particles are the aqueous solutions of some salts, the author presents a theoretical discussion of the stability and variation of magnitude of a fog particle without considering the electrical charge of the particle. Mathematical analyses of the relation between the radius of a fog particle and its concentration in an aqueous solution, the relation between the radius and concentration of a dissipating or growing fog particle, of the variation of a fog particle due to combination of particles of different magnitudes and of changes of fog particles due to variation of air mass temperature are presented. *Subject Headings:* **1. Fog particle variations 2. Condensation nuclei.**—*I.L.D.*

4.9–170 551.575.1

Kojima, K., Oono, T. and Yamaji, K., **Measurement of the size of fog particles.** *Journal of Meteorological Research,* Tokyo, v. 4, Suppl. Number, p. 223–234, March **1952.** 11 figs., 3 tables. In Japanese. English summary p. 334–335. **MH-BH**—Sea fog droplets at Ochiishi were caught in an oil film and measured from microphotographs. Peak diameter 5–20μ, less often 20–25μ, maximum 40–60. Drop size by day decreased with rising temperature and varied with height 1–2 to 12 m, a drop taking 10 sec to descend from about 15 m to ground. Liquid water content M at distance x in forest compared with windward edge (M_0) given by $M=M_0\exp(-\beta x)$. Vertical gradient dM/dz above forest 1–2 mg/m^3/m. *Subject Headings:* **1. Fog formation 2. Drop size measurement.**—*C.E.P.B.*

4.9–171 551.575.1:551.524.4:551.511

Kushizaki, R., **Dissipation of fog by the heat diffusion from the upper inversion layer.** *Journal of Meteorological Research,* Tokyo, v. 4, Suppl. Number, p. 77–80. March **1952.**

3 figs. In Japanese, English summary p. 325. **MH-BH**—Assuming an initial isotherma layer surmounted by a lapse, the eddy diffusion coefficient is calculated from the vertica temperature distribution from surface to 60 m. The coefficient increases with height and is 10^4–10^5 c.g.s. by day and 10^3–10^4 by night. *Subject Headings:* **1. Fog dissipation 2. Vertica temperature gradient 3. Eddy diffusion.**—*C.E.P.B.*

4.9–172 551.575.1:551.588.7

Matsui, Y., **Notes on the fog proof coefficient of forest near Ochiishi.** *Journal of Meteoro logical Research*, Tokyo, v. 4, Suppl. Number, p. 301–320, March **1952.** 15 figs., 18 tables In Japanese, English summary p. 339. **MH-BH**—The coefficient of fog-proof efficiency of a forest is defined as $H\sqrt{(0.6745\ h\lambda_H)}$, where H is height and h length of crown (m) and λ_H stand ard deviation of H. *Subject Headings:* **1. Fog dissipation 2. Forest influences.**—*C.E.P.B.*

CLOUDS

See also: **Singapore cloud detection trials** (Frost), 4.9–32; **"Project Cirrus,"** 4.9–58.

4.9–173 551.576.11:551.556

Curry, Manfred, **Clouds, wind and water.** N. Y., Charles Scribner, **1951.** 16 p.+99 p of photographs. diagrs. **DWB**—A collection of 100 large, beautiful halftone photographs of storm, sea, cloud, snow, wave, mountain and lake scenes, with about 10 pages of text de scribing clouds and general cloud types, and the formation and nature of waves (water and air). The analogy between sea and cloud waves is shown vividly. *Subject Headings:* **1. Cloud photographs 2. Wave photographs 3. Cloud atlases 4. Wind effects.**—*M.R.*

4.9–174 551.576.11

Otani, S. (*Tokyo District Met. Obs.*), **Theoretical aspect on size distribution of cloud particles and its application to stratus cloud.** *Geophysical Magazine*, Tokyo, 23(1):65–71 Dec. **1951.** 4 figs., 3 tables, 9 refs. **MH-BH**—Discusses size distribution in a cloud in which small particles are generating and growing continuously. Proposes frequency (ϕ) distribution $\phi = re^{-\alpha r^2}$ (r—radius of particle) and compares it with observations. Since evaporation time of cloud particles is proportional to r^2, the size distribution in some stratus clouds does not differ, although the water content increases with height. Relations between supersaturation and particle size in the state of generating cloud are discussed. *Subject Headings:* **1. Drop size distribution 2. Stratus clouds 3. Evaporation.**—*A.A.*

4.9–175 551.576.11:629.13

Tuke, J. B.; Bannon, J. K., **Condensation trails.** *Meteorological Magazine*, London, 82(970):125, April **1953.** 2 figs. **DWB**—Photographs of trails near Stroud, Gloucestershire, on Nov. 10, 1952, showing twisted and comb-like structure. The kink is attributed to a thin local horizontal eddy. *Subject Heading:* **1. Condensation trails.**—*C.E.P.B.*

4.9–176 551.576.11:779

Workman, Everly J. and Holzer, R. E. (*Univ. of New Mexico*), **A photographic and electrical study of clouds.** [New Mexico. University. Dept. of Physics, n.d.] 24 p. figs., tables. **DWB**—Photographs of developing cumulus over the Sandia Mountains near Albuquerque during late spring of 1939, were made at rate of one every five seconds and one each minute, respectively. Equipment is illustrated, methods of photography described and results in terms of height of zero isotherm, potential gradient, cloud thickness, etc. given in tables and discussed. Color film was also made in May–June 1941 but this film is not available in U. S. Weather Bureau Library. *Subject Headings:* **1. Cumulus cloud formation 2. Cloud physics 3. Cloud photography. I. New Mexico. Univ. Dept. of Physics.**—*M.R.*

4.9–177 551.576.12

Krichak, O. G., **O geneticheskoĭ klassifikatsii oblakov.** [On the genetic classification of clouds.] *Meteorologiia i Gidrologiia*, No. 7:23–25, **1952.** table. **DLC**—The morpho logical principles of cloud classification by BERGERON are considered as satisfactory, but his

three genetic classes frequently cause difficulties in classification of species and varieties of clouds, because the physical conditions of cloud formation are insufficiently determined. The author proposed the following scheme of grouping clouds according to their genesis: 1) clouds of stable rising air flow—Ci, Cs, As, Ns, Ac, Sc; 2) clouds without adiabatic cooling—fog, St, Sc, Ac, As; 3) thermal convection clouds—Cu, Cb, Ac cast, and probably Cc; 4) dynamic convection clouds—Cu, Cb, St, Sc, Frcu, Frst, Frnb, and probably Cc; 5) divergence and subsidence clouds—Ac lent, Sc, Sc cum, Sc vesp., Ac (inversional), Cc. *Subject Heading:* **1. Cloud classification.**—*N.T.Z.*

PRECIPITATION

See also: **Scattering and attenuation by non-spherical atmos. particles** (Atlas, Kerker, Hitschfeld), 4.9–31; **Rainfall trend, E. Africa** (Sansom), 4.9–41; **Climate of NW wheat belt, N.S.W., rainfall over marginal areas** (Hounam), 4.9–206; **Cattle on mixed red grass** (Mostert), 4.9–233.

4.9–178 551.577(410)(058)

***British Rainfall 1950, Report on the distribution of rain in space and time over Great Britain and Northern Ireland during the year 1950 as recorded by about 5,000 observers.** London, H.M.S.O. 1952. 215 p. numerous maps and tables. M.O. 560. **DLC**—This annual volume includes all the usual features in Pt. I: General report, days with rain, droughts, wet spells, duration of rainfall, heavy falls, monthly, seasonal and total rainfall, evaporation and percolation. Pt. II is a table of annual rainfall and days (.01 and .04 inch) at all stations, and Pt. III includes county averages. *Subject Headings:* **1. Precipitation data 2. Annual meteorological reports 3. Great Britain 4. Northern Ireland. I. Great Britain. Meteorological Office.**—*C.E.P.B.*

4.9–179 551.577(45)

*Capra, Anna, **Andamento delle precipitazioni a Bologna dal 1813 al 1924.** [The course of precipitation at Bologna from 1813 to 1924.] *Italy. Centro di Studi per la Geografia Fisica, Ricerche sulle Variazioni Storiche del Climat Italiano*, No. 11, 1952. 24 p. 6 tables, 6 figs., refs. **DWB**—One of the largest continuous records of precipitation, number of days with rain and with snow is analyzed in several ways and charts presented to show secular variations in annual, seasonal and smoothed (10 year) averages. Detailed monthly data are given for entire period. Also decadal averages and monthly means for entire period. Record is also analyzed for periodicity and recurrences of 5.7, 8.28, 11.4, 33 and 100 years discovered in the annual total as well as the monthly mean precipitation in the period 1813–1932. *Subject Headings:* **1. Precipitation data 2. Precipitation periodicities 3. Long period records 4. Bologna, Italy.**—*M.R.*

4.9–180 551.577.1:551.547(569.4)

Schwarz, Uri, **Rain in summer.** *State of Israel. Meteorological Service, Series C*, No. 4, 1952. 10 p. 6 figs., 2 tables, 6 refs. Mimeo. **DWB**—Isolated light showers fall at 1–2 stations in N and Central Israel in July or Aug. about once in 3 years, and more widespread rains at longer intervals. They are not associated with surface features but with troughs at 700 mb moving E, bringing cool comparatively moist air. Only unusually active troughs give showers because front is usually diffuse. Illustrated by troughs of July 1951 with low circulation index. A map of mean annual rainfall is included. *Subject Headings:* **1. Instability showers 2. Israel.**—*C.E.P.B.*

4.9–181 551.577.3

*Longley, Richmond W. (*Met. Div. Toronto, Canada*), **Measures of the variability of precipitation.** *Monthly Weather Review*, 80(7):111–117, July 1952. 3 figs., tables, 12 refs. **MH-BH**—Several measures of variability for precipitation are compared and evaluated from the point of view of effectiveness in testing significant variations for agriculture. The coefficient of variation σ/M is considered the best test in comparing stations, and examples are worked out for British Columbia and Washington State. At least 30 years of record is needed for such computations. Interesting variations in standard deviation of mean precipitation σ/M are revealed on the chart. Numerous graphs, based on records at Qu'Appelle, Saskatche-

wan, Halifax (4 seasons) and 5 Chinese stations (year) show behavior of σ/M, $m.d./M$ and Q/Median with 10–80 years of records. *Subject Headings:* **1. Precipitation variations 2. Coefficient of variation σ/M 3. British Columbia 4. Washington.**—*M.R.*

4.9–182 551.577.36:681.177

Schneider-Carius, Karl and Huttary, Josef, **Darstellung täglicher Niederschlagswahrscheinlichkeiten am Beispiel von Bremen, Berlin, Bamberg, Karlsruhe und München.** [Evaluation of daily rainfall probabilities with the examples of Bremen, Berlin, Bamberg, Karlsruhe and Munich.] *Germany. Deutscher Wetterdienst in der U. S.-Zone, Berichte,* No. 38:156–160, **1952.** 2 figs., 3 tables, 6 refs. **DWB**—Punched cards enabled detailed frequency tables of different daily rainfall totals to be compiled. Examples for the year are given and numerical codes of intensity suggested. *Subject Headings:* **1. Precipitation frequencies 2. Punched card computations 3. Germany.**—*C.E.P.B.*

4.9–183 551.577.37:551.515.4(42)

Bleasdale, A. and Douglas, Charles K. M., **Storm over Exmoor on August 15, 1952.** *Meteorological Magazine,* London, 81(966):353–367, Dec. **1952.** 17 figs., 4 tables. **MH-BH**—On Aug. 15, 9.0 in. of rain fell at Longstone Barrow (Devon). The fall probably exceeded 10 in. at Simonsbath. A chart of isohyets over Exmoor is given, volume on drainage areas and hourly rates of rainfall tabulated. The synoptic chart shows a small depression over English Channel with a warm sector from which rain area was fed by a large deep converging and ascending current over Exmoor. Earlier exceptional falls are compared. Numerous photographs of effects are reproduced. *Subject Headings:* **1. Excessive rainfall 2. Exmoor, England.**—*C.E.P.B.*

4.9–184 551.577.37:551.515.1

Bonacina, Leo C. W., **The Exmoor cataclysm.** Ratcliffe, A. H., **An Exmoor journey.** §Marshall, W. A. L., **The Lynmouth Floods.** *Weather,* 7(11):336–342, Nov. **1952.** 2 figs., 2 tables. **MH-BH**—Accounts of the rainfall of Aug. 15, 1952, on Exmoor. MARSHALL describes the synoptic situation—a depression over western English Channel with warm humid air from Brittany in the warm sector combined with strong orographic influences. *Subject Headings:* **1. Excessive rainfall 2. Exmoor, England. I. Ratcliffe, A. H. II. Marshall, W. A. L.**—*C.E.P.B.*

4.9–185 551.577.37(438)

*†Chomicz, Kazimierz, **Ulewy i deszcze nawalne w Polsce.** [Heavy rainfall and cloudbursts in Poland.] *Poland. Panstwowy Instytut Hydrologiczno-Meteorologiczny, Wiadomosci Sluzby Hydrologicznej i Meteorologicznej,* 2(3):178–260, **1951.** tables, figs., bibliog. p. 85–88, eqs. **DWB**—The author gives a modified classification of heavy rainfalls and discusses numerous formulas for the relation between maxima total rainfall and duration of rainfall for different parts of the world. Seventy one heavy rains in Warsaw are discussed and detailed data are given for single intense rainfalls observed on hundreds of Polish stations. A list of 261 meteorological stations giving the Polish and the former German names is added. A table is presented giving for each duration from one minute to 84 hours the calculated total precipitation for heavy rainfalls of different rates up to cloudbursts. *Subject Headings:* **1. Excessive rainfall 2. Maximum precipitation 3. Poland.**—*M.R.*

4.9–186 551.577.51

Takehana, M., **On the orographic precipitation in Yamagata Prefecture.** *Journal of Meteorological Research,* Tokyo, 4(5):191–193, Aug. **1952.** 3 figs. In Japanese; English summary p. (14). **MH-BH**—In general, the amount of precipitation increases with height above sea level up to a moderate elevation. In Yamagata Prefecture, the author shows, the local vertical distribution of the monthly amount of precipitation (P) can be represented by the formula, $P = P_o + \bar{\alpha}h$, where $\bar{\alpha}$ is the increasing ratio for mean value. As a rule, α can be assumed as a function of P_o, such as $\alpha \propto P_o$. This value is applied to describing the climatic locality. *Subject Headings:* **1. Orographic rainfall 2. Yamagata Prefecture, Japan.**—*Author's abstract.*

4.9–187 551.577.38:551.585.53

*Obuljen, Ante, **Ovogodisnja susa u nasimkrajevima.** [The drought of 1950 in Yugoslavia.] *Srpsko Geografsko Drushtvo, Belgrade, Glasnik*, 30(2):65–76, **1950.** 2 figs., tables. In Croatian; French summary p. 76. **DLC**—Data for May, June, July and Aug. 1950 for 9 synoptic stations in Yugoslavia, show that for this period most of the stations had <50% of normal rain, and Split and Lastovo on the Dalmatian coast had 10% or less. Long period records show that not only 1950, but the past decade (1941–50) have been drier than usual in this region during the growing season. Some connection is established between 90 year temperature record at Zagreb, and the precipitation and sunspot activity. During 1941–50 there have been more hot months and more dry months than during any other decade. *Subject Headings:* **1. Drought 2. Solar influences 3. Drought areas 4. Yugoslavia.**—*M.R.*

SNOW

4.9–188 551.578:016

†Korhonen, V. V., **Report of the researches concerning snow- and ice conditions, which have been made in Finland after 1936.** *International Union of Geodesy and Geophysics, International Association of Scientific Hydrology, [Transactions] Oslo 1948*, 2:31–32, [**1949**]. **DWB**—A list of 23 papers published since 1936 in Finland, on the subject of snow, ice, freezing of rivers and lakes, heat budget of Finnish seas and lakes, etc. (All in German or Finnish, with English or German translation of tables.) *Subject Headings:* **1. Bibliographies 2. Snow and ice research 3. Energy exchange 4. Finland 5. Baltic.**—*M.R.*

4.9–189 551.578.4:551.556.1:631.4

Hempel, Ludwig, **Abtragung durch Schneekorrasion.** [Soil erosion by snow scouring.] *Petermanns Geographische Mitteilungen*, 96(3):183–184, **1952.** 7 figs., 4 refs. **DWB**—On the edge of Magdeburg plain, where clods of ploughed land protruded through the snow, numerous particles of earth loosened by wind-driven ice crystals are swept away over the snow, leaving stones behind. This is termed "snow corrasion." *Subject Headings:* **1. Wind damage 2. Snow damage 3. Soil erosion.**—*C.E.P.B.*

4.9–190 551.578.41:551.501.8

Marshall, John S.; Langleben, M. P. and Rigby, Caroline, **Precipitation trajectories and patterns.** McGill University. Macdonald Physics Laboratory. Stormy Weather Research Group, Contract AF 19(122)-217, Scientific Report MW-8, Aug. **1952.** 22 p. 7 figs., 3 refs., 2 eqs. **DWB.** Also: *Journal of Meteorology*, 10(1):25–29, Feb. **1953.** 7 figs., 3 refs., 2 eqs. **MH-BH**—Falling snow is shown in height/range radar sections as streaks. With wind shear and rate of fall constant these are parabolic, becoming nearly horizontal near ground. This is related to movement of small precipitation-forming elements. Different sizes of flakes cause sorting of snowflakes, largest reaching ground first, and broadening of streaks. Effect of updrafts and passage through 0°C level are discussed. *Subject Headings:* **1. Snow analysis 2. Radar analysis of precipitation. I. McGill University. Macdonald Research Laboratory. Stormy Weather Research Group II. Contract AF 19(122)-217.**—*C.E.P.B.*

4.9–191 551.578.41:551.574.1

Nakaya, Ukichiro, **An electron microscope study of snow crystal nuclei.** *Journal of Glaciology*, 2(13):176–180, April **1953.** 6 figs., 2 tables, 6 refs. English and German summaries p. 176. **GB-MO**—Snow crystals caught in a collodion film on Mt. Taisetsu were sublimated below 0°C leaving the nucleus of diameter 0.5 to 8μ; usually a soil particle. There were also numerous minute particles (2 groups around 0.15 and 0.05μ) in all parts of the crystal, termed "condensation nuclei," concentration greatest in thick crystals. It is considered that each was nucleus of a minute droplet (about 1μ) and that more than half the ice in a snow crystal comes from these droplets. *Subject Headings:* **1. Freezing nuclei 2. Snowflake formation.**—*C.E.P.B.*

4.9–192 551.578.41

Yamamoto, Gi-ichi; Ogiwara, Sekiji; Yoshida, Kanji and others, **Observations of the rate of growth of ice crystals artificially produced in the atmosphere.** *Tohoku University,*

Science Reports, 5th Ser., Geophysics, 4(2):83–87, Oct. **1952.** figs., 2 tables, 5 photos, 7 refs. **MH-BH**—Experiments conducted under natural conditions on Mt. Zao in N. Honshu from March 1 to March 8, 1952, are reported. A spray nozzle generator was used for atomizing an acetone solution of silver and sodium iodide with compressed hydrogen. Supercooled cloud droplets and ice crystals were captured at several sites and examined with electron microscopes. A day-by-day account of operations and of meteorological conditions is given. Data on results and microphotographs of ice crystals and water droplets are presented. The authors find evidence indicating that ice crystals were actually produced in the seeding operations and that these grow by sublimation at the rate determined in HOUGHTON's calculations. *Subject Headings:* **1. Ice crystal formation 2. Laboratory experiments. I. Miura, Akira II. Okita, Tochi-ichi III. Ohtake, Takeshi.**—*G.T.*

4.9–193 551.578.45

Parrott, William H. (*Central Sierra Snow Lab.*), **The big winter of 1951–1952 in the High Sierra.** *Weatherwise*, 6(1):12–14, Feb. **1953.** diagr., illus. **MH-BH**—Record-breaking snowfall recorded in the Donner Summit area (central Sierras) is reported and discussed. Snowpack and snowfall amounts at Donner Summit are given for every year since 1910. During the season 1951–52 over 800 in. of total snowfall were measured at the Donner Summit station, a value which was only approached in the years 1879 and 1889 with an estimated snowfall of over 700 during both years. Largest accumulated snow depth during the season occurred in March with 247 in. (record accumulation was over 300 in. in 1911). *Subject Headings:* **1. Excessive snowfall 2. Snow accumulation 3. Donner Summit.**—*G.T.*

4.9–194 551.578.46 551.579.2(71)

*British Columbia. Dept. of Lands and Forests, **Summary of snow-survey measurements in British Columbia, 1935–1952 inclusive.** Victoria, B. C., Water Rights Branch, Dept. of Lands and Forests, **1952.** 42 p. map, diagrs., tables. **DWB**—Data tabulated in this summary comprise average depth of snow, average snow water content and average snow density measured during periods of varying length at the 66 snow courses now being sampled regularly in B. C. by the Water Rights Branch, and several cooperative agencies. Earliest records are from 1935. A map giving location of the measuring sites is appended. *Subject Headings:* **1. Snow surveys 2. Water content of snow 3. Snow density 4. British Columbia.** —*G.T.*

HYDROMETEOROLOGY

See also: **Hydromet. stations for administrative regions or river basins** (Goliatin), 4.9–35; **Glaciological studies, Baffin Is. Expedition, 1950** (Ward, Orvig), 4.9–85; **Snow survey, British Columbia,** 1935–1952 (British Columbia, Dept. Lands and Forests), 4.9–194.

4.9–195 551.579.2

Barnes, Bertram S., **The problem of snow in determining the spillway design flood.** *Western Snow Conference, 16th Annual Meeting, 1948, Proceedings*, p. 23–29, Feb. **1949.** 2 figs. **DWB**—*Subject Headings:* **1. Hydrometeorology 2. Snow cover effects 3. Spillway design 4. Maximum floods.**

4.9–196 551.579.2:33

Burdick, Raymond T. (*Fort Collins, Col.*), **Economic aspects of snow.** *Western Snow Conference, 17th Annual Meeting, April 1949, Proceedings*, p. 5–13, **1949. DWB**—Value of snow for irrigation, stream flow, forestry balanced against losses due to blizzards, in raising livestock, highway maintenance, railroad operation and interference with marketing and business. Freezing and heaving roadbeds due to cold and snowmelt also costly. *Subject Headings:* **1. Snow economics 2. Snow cover effects 3. Snow damage 4. Runoff.**—*M.R.*

4.9–197 551.579.2

Church, J. E., **The evolution of snow-melt by dyes and drip-pan.** *International Union of Geodesy and Geophysics, International Association of Scientific Hydrology, [Transactions] Oslo 1948*, 2:115–117, [**1949**]. 2 figs. **DWB**—Experiments with dyes at Soda Springs,

alif. snow station described and equipment illustrated. *Subject Headings:* **1. Snow melt . California.**—*M.R.*

4.9–198 551.579.2:551.482

Goddell, B. C. (*Johns Hopkins Univ., Baltimore, Md.*), **Watershed management aspect f thinned young lodgepole pine stands.** *Journal of Forestry*, 50(5):374–378, May **1952.** figs., 4 tables, 4 refs. **DLC**—Thinning which reduced basal area by 55% caused an increase about 2″ water equivalent snowfall and about 0.5″ (or 15%) in summer rainfall reaching the round. The snowmelt was accelerated, but no changes in minimal soil moisture (Sept.) ere observed. Thinning should increase water field and can be applied, where no erosion azard exists. Runoff measurements were not made. *Subject Headings:* **1. Watersheds . Forest influences 3. Snow melt.**—*A.A.*

4.9–199 551.579.2

Hildebrand, Carver E., **The general snowmelt equation.** U. S. Corps of Engineers, roject CW-171, Technical Bulletin No. 13, May 25, **1951.** 27 p. table, 38 refs., 20 eqs. **WB**—This bulletin is a summary of the various heat transfer processes involved in the melting snow and of the available means by which their magnitudes may be estimated. A general nowmelt equation is formulated to express the melt from any combination of these processes. ractical application is discussed wherein the general equation may be simplified by con- deration of the relative importance of the individual processes. *Subject Headings:* **1. Snow elt 2. Snow metamorphosis. I. U. S. Corps of Engineers II. Project CW-171.**—*Author's bstract.*

4.9–200 551.579.2:551.579.4

McClean, W. N. (*Scotland*), **Flooding due to the melting of snow and ice.** *International Union of Geodesy and Geophysics, International Association of Scientific Hydrology, [Transactions] Oslo 1948*, 2:41, [**1949**]. **DWB**—Excess of runoff over rainfall in March and April r 15 years averaged 1.0 in. (over 5.4 in.) in the Aberdeenshire Dee, 0.3 in. (over 16–20 in.) r Feb.–April on the Rivers Ness and Lochy. The Jan.–March 1947 cold spell resulted in rious floods in the great Ouse, Trent and Lee. *Subject Headings:* **1. Snow melt 2. Runoff Floods 4. Scotland.**—*M.R.*

CLIMATOLOGY AND BIOCLIMATOLOGY

CLIMATOLOGY

4.9–201 551.58

Shapaev, V. M., **Vopreki istoricheskoĭ pravde.** [Contrary to historical truth.] *Vsesoiuznoe Geograficheskoe Obshchestvo, Izvestiia*, 84(2):207–211, March/April **1952.** refs. **DLC**—EIGHLY's article "Climatology since the year 1800," *Amer. Geophys. Union, Trans.*, 30(5):658–72, 1949 (*see item* 2.11–156, Nov. 1952, *MAB*), is criticized for having neglected the Russian nd Soviet contributions to climatology. The author cites LOMONOSOV's (1753) recognition the moderating influence of seas upon continental climates; I. S. GEORGI's (1794) study of the imate of St. Petersburg, M. F. SPASKIĬ's (1887) monograph on the climate of Moscow which receded BLODGETT's work by ten years, the numerous contributions of A. I. VOEIKOV on tmospheric circulation, agricultural climatology, etc. Discusses the "complex climatology" E. E. FEDOROV, B. P. ALISOV's classification of climate based upon weather types and thermo- ynamic processes in air masses (1936), L. S. BERG's (1924), P. I. BROUNOV's (1904) climatic assifications and the investigation of Russian paleoclimatologists, and criticizes various efinitions of climatology proposed by non-Soviet climatologists. *Subject Headings:* **1. Cli- atology 2. Critical reviews 3. U.S.S.R.**—*I.L.D.*

4.9–202 551.58:9.1(47)

Zabelin, I. M., **Geograficheskaia sreda, geograficheskie prirodnye kompleksy i sistema ziko-geograficheskikh nauk.** [Geographical environment, geographical natural entities nd the system of physical geographical sciences.] *Vsesoiuznoe Geograficheskoe Obshchestvo,*

Izvestiia, 84(6):602–615, Nov./Dec., **1952.** bibliog. p. 615. **DLC**—A discussion of th theoretical bases of geography as a science and of the interrelationship of the components o physical environment such as climate, landscape, lithosphere, biosphere, etc. with special ref erence to the theoretical values of V. V. DOKUCHAEV and of L. S. BERG. Special consideratio is given to the role of solar radiation in the formation of natural entities such as climate and th origin and maintenance of life upon the earth, and the role of climate in physical geographica sciences is considered. *Subject Headings:* **1. Geographical climatology 2. U.S.S.R.**—*I.L.D.*

4.9–203 551.581:551.506.5(269

van der Does, Willem, **Storm-ijs en walvischen, een moderne vikingtocht met Noorsch walvischvaarders maar de Zuidelijke IJszee.** [Storm, ice and whales, a modern Viking voyage with Norwegian whalers to the Antarctic Sea.] Amsterdam, C. de Boer Jr., **1947.** 38 p. illus. **DWB, DLC**—A fairly long, popular and profusely illustrated account of a Dutch man's experiences on a Norwegian whaling ship which in 1923 went from Tasmania to Mac quarie Island, thence to the pack-ice and the ice shelf of Ross Sea and King Edward VII Land and returned to Campbell Island and New Zealand. Weather conditions, snowstorms, gales ice conditions, etc. are vividly described. *Subject Headings:* **1. Antarctic weather 2. Ant arctic storms 3. Antarctic sea ice 4. Whaling expeditions 5. Antarctic Ocean. I. Biblio theek der Zeven Zeeën.**—*M.R.*

CLIMATE OF PARTICULAR PLACES

See also: **Climate of Kew Observatory, 1871–1950** (British Met. Off.), **4.9–38; Bibliography on climatology and marine met. of Pacific,** p. 1036–1082.

4.9–204 551.582.2:551.21(72

*Fries, Carl, Jr. and Gutiérrez, Celedonio, **Activity of Paricutin Volcano from July 1 t December 31, 1951.** *American Geophysical Union, Transactions*, Pt. 1, 33(5):725–733, Oct **1952.** 6 figs., 3 tables, 3 refs. **MH-BH**—In the first part of 1951 about 80 explosions were noted and in the second part of the year, nearly 400, of which 30 were particularly strong On some days, Dec. 15–20, violent explosions occurred, and the rainfall was greater than during any other period since 1948. Electrical discharges in the eruptive column during ash-lade eruptions were observed on five days in July, eight days each in Aug., Sept. and Oct., one i Nov. and none in Dec. The data on eruptive characteristics are given in diagrams, and simultaneous meteorological observations of the Equijuata Station are summarized in a table showing monthly maximum and minimum temperature, total and maximum rainfall and ash fall, minimum humidity and average directions of the upper winds. Total monthly rainfal and ashfall for the years 1947–1951 are given for the Cuezeno and Equijuata Stations. The advance of lava is shown on a map. *Subject Headings:* **1. Parícutin volcano 2. Climatic data 3. Vulcanology 4. Mexico.**—*W.N.*

4.9–205 551.582.2(777

*Iowa. Dept. of Agriculture, **Climatological summary, Cedar Rapids.** Des Moines, Iowa **1953.** 35 p. tables, graphs. Mimeo. **DWB**—Tabulated temperature and precipitation data are presented for the period 1882–1950. They include monthly means and extremes year by year and for the whole period, data on hot and cold spells, on earliest and latest date with 23°F, monthly and seasonal snowfall, etc. River stage and discharge records (1919 1951) and ground water levels (1940–1951) are also given. A brief description of the climate of Cedar Rapids is included. *Subject Headings:* **1. Climatic data 2. Climate of Cedar Rapids 3. Long period records 4. Cedar Rapids, Iowa. I. U. S. Weather Bureau.**—*G.T.*

4.9–206 551.582.2:551.577.2(94

*Hounam, C. E., **Climate of the North-West wheat belt of N.S.W. with special reference to rainfall over marginal areas.** *Australia. Meteorological Bureau, Studies in Applied Climatology, Pamphlet*, No. 4, **1950.** 3 figs., 9 tables, 30 maps, 6 refs. **MH-BH**—Detailed analysis of the climate of the North-West wheat belt of New South Wales and of the climate of the North West Plains and slopes of New South Wales in relation to grain sorghum produc tion are presented. Only temperature and rainfall are considered. Special attention is give

) effective rainfall and rainfall probability. The statistical data include average and extreme emperatures at selected stations for each month, monthly and annual average rainfall for ach rainfall station, and monthly rainfall probability (percentage chances of receiving specified esired amounts or more for each month). Maps showing: 1) average of frost and last occurrences of a minimum temperature of 36°F or under or 32°F or under; 2) average, annual nd average seasonal rainfall; 3) percentage chances of receiving various specified amounts f rain during given months; 4) seasonal growth factor and 5) influential rainfall factor, are ıçluded. *Subject Headings:* **1. Agricultural climatology 2. Precipitation data 3. Climate of lew South Wales, Australia 4. New South Wales, Australia.**—*I.L.D.*

4.9–207 551.582.2:551.585.5:551.584(57)

Kashkarov, Daniil Nikolaevich, Zhukov, A. and Staniukovich, K., **Kholodnaia pustynia sentral'nogo Tian-shania. Resul'taty Ekspeditsii LGU letom 1934 g.** [The cold desert of Central Tien Shan. Results of expedition of LGU (Leningrad State University) in summer 934.] Leningrad, LGU Izdat., **1937.** 116 p. photos., diagrs., graphs, refs. **DLC**—hap. I (p. 12–35) contains in the section on Macroclimate, data on temperature (yearly ıean and seasonal distribution), precipitation, humidity of the air, winds, rate of cooling with ltitude, cloudiness, intensity of solar radiation, weather variations, temperature of the soil, ermafrost and underground ice. Deviations from the means, which to a certain extent lleviate the gloomy picture described in this section, are discussed in the section on Eco- nd Microclimatic Data. The chapter concludes with a comparison of the climate of the cold esert with the climate of Pamirs and Novaya Zemlya. *Subject Headings:* **1. Climatic data . Microclimatology 3. Desert climates 4. Tien Shan, Kirgizia 5. U.S.S.R.**—*C.K.*

4.9–208 551.582.2(438)

*Poland. Państwowy Instytut Hydrologiczno-Meteorologiczny, **Wartości średnie mieeczne i roczne ze stacyj rzędów wyższych, I–III.** [Monthly and yearly observations at ations of I–III order.] *Poland. Państwowy Instytut Hydrologiczno-Meteorologiczny, Rocznik leteorologiczny,* 1935, Pt. II, pub. **1950.** 71 p. mostly tables. **DWB**—Monthly and nnual pressure, temperature, wind, precipitation, vapor pressure, humidity, cloudiness and iiscellaneous data from 154 first, second and third order stations in Poland are presented or 1935 in tables (by stations). Coordinates are given and a station location chart appended. *ubject Headings:* **1. Climatic data 2. Poland.**—*M.R.*

4.9–209 551.582.2(497.1)

Radošević, Mulušin Dj., **Vreme u Beogradu Decembar 1948–Maj 1949.** [Weather at elgrade Dec. 1948–May 1949.] *Yugoslavia. Hidrometeorološka Služba. Hidrometeorološki lasnik,* Belgrade, 2(1–2):123–124, **1949.** table. In Serbian. **DWB**—A short review of eather conditions with monthly mean data for the air temperature, humidity, pressure, etc. ith a comparison with long period observational data. In May 1949 an unusually heavy mount of precipitation (217% above normal) was recorded. *Subject Headings:* **1. Climatic ata 2. Belgrade, Yugoslavia.**—*N.T.Z.*

4.9–210 551.582.2(776)

*Soine, O. C., **Fifty years of weather in the Red Valley.** *Minnesota. Agricultural Experient Station, St. Anthony Park, Bulletin,* 408, May **1951.** 19 p. 10 tables, 4 figs. **DWB**—emperature, precipitation, frost and wind data for Crookston, Minn. (Experiment Station) om 1900–1949 are analyzed statistically, discussed and presented in graphs and tables. *ubject Headings:* **1. Climatic data 2. Red River Valley 3. Crookston, Minn.**—*M.R.*

4.9–211 551.582.3:628.8

Caspar, W., **Klimakarten für die Technik mit Beispielen aus dem Heizungswesen.** [Cliatic charts for technology with examples from heating technique.] *Germany. Deutscher Vetterdienst in der US-Zone, Berichte,* No. 42:281–285, **1952.** fig., 3 charts, table, 15 refs. **WB**—Paper discusses preparation of climatic data for technical use, and preparation of technoclimatological" charts. As examples are charts for Germany showing mean dates of eginning of heating period (mean room temperature 19°), its duration, and number of heat

degree days. *Subject Headings:* **1. Temperature control 2. Degree days 3. Germany.**—*C.E.P.B.*

4.9–212 551.582.3:551.586:613.

†Scharlau, K., **Die Schwülezonen der Erde.** [The sultriness zones of the earth.] *Germany. Deutscher Wetterdienst in der US-Zone, Berichte*, No. 42:246–249, **1952.** chart, 21 refs. **DWB**—A world chart based on duration of vapor pressure above 14.08 mm shows zones of permanent and periodic sultriness, with a full discussion. *Subject Headings:* **1. Sultriness 2. Comfort zones.**—*C.E.P.B.*

CLIMATIC CHANGES

See also: **Monthly and annual mean temp. frequency distributions in three 100-year series** (Mahrt, Feussner), **4.9–117.**

4.9–213 551.583:634.948

Blüthgen, Joachim, **Baumgrenze und Klimacharakter in Lappland.** [Tree line and climatic character in Lapland.] *Germany. Deutscher Wetterdienst in der US-Zone, Berichte*, No. 42:362–371, **1952.** 2 figs., 5 tables, 27 refs. **DWB**—Vegetation types of Lapland are mapped. In the past 20–30 years there has been a marked rise of temperature, still continuing, concentrated in Nov., Dec. and July, shown by curves for 6 stations 1931–50, 1901–35, 1859–1925. Tree limits have advanced, especially birch and pine. *Subject Headings:* **1. Tree line 2. Climatic changes 3. Lapland.**—*C.E.P.B.*

4.9–214 551.583:525.3

Climatic change puzzle. *Science News Letter*, 61(23):357–358, June 7, **1952. DWB**—Brief report of work at Yale University Observatory by Drs. Dick Brouwer and A. J. J. van Woerkom on variations in earth's orbit over past million years. These variations are said to produce real effect on climatic conditions but cannot alone account for ice ages. At 45°N, changes due to such wobbling can amount to 2½% of received heat in summer. *Subject Headings:* **1. Climatic changes 2. Earth's orbit 3. Quaternary climates. I. Brouwer, Dick II. van Woerkom A. J. J.**—*M.R.*

4.9–215 551.583:551.31(491)

Thorarinsson, Sigurdur, **Notes on patterned ground in Iceland, with particular reference to the Icelandic "flás."** *Geografiska Annaler*, 33(3/4):144–156, **1951.** 11 figs., refs. **DWB**—Patterned ground occurs in Iceland in both bare ground and ground covered by vegetation. The Icelandic "flá" is characterized by numerous small lakes and pools alternating with level patches of boggy ground and by a multitude of hummocks (rúst). Every "flá" is subjected to a constant cyclical process in that new *rústs* are constantly forming and old *rústs* destroyed, mainly by wind erosion. Climatic changes disturb this equilibrium. The last few decades the *rústs* have been found to be disappearing from the "flás" in Iceland. *Subject Headings:* **1. Patterned ground 2. Climatic changes 3. Iceland.**—*A.A.*

4.9–216 551.583.14:551.506.8(49)

Huxley, Julian, **Natural history in Iceland.** *Smithsonian Institution, Annual Report*, 1950:327–338, **1951.** 4 figs., table. Reprinted from *Discovery*, 21(3), March **1950. DWB**—In this ornithological article the author refers to a world-wide change in climate and states that observation of birds, plants and fish in and around Iceland provide evidence indicating a general tendency of warming up during the last few decades and particularly the last 10–15 years. *Subject Headings:* **1. Climatic trends 2. Temperature trends 3. Phenology 4. Iceland.**—*G.T.*

4.9–217 551.583.3

Charlesworth, J. K., **The ice age and the future of man.** *Science Progress*, 41(161):1–21, Jan. **1953.** 4 figs., 15 refs. **DWB**—Ice age is attributed to general cooling of about 7.5°C and resulted also in periglacial and pluvial climates. Causes discussed inconclusively. Post-

acial changes are summarized. Effects of future renewed glaciation or complete deglaciation e briefly discussed. *Subject Heading:* **1. Quaternary climates.**—*C.E.P.B.*

4.9–218 551.583.7:523.72

Öpik, E. J., **On the causes of Palaeoclimatic variations and of the ice ages in particular.** *ournal of Glaciology*, 2(13):213–218, April **1953.** 7 tables, 12 refs. English and German mmaries p. 213. **GB-MO**—A revised summary of author's earlier publications with ex- rpts from his tables. Changes of global temperature T are related to variations of solar diation I by $\partial T/T = (\delta I/I)K$, K being a "stability factor" depending on outward radiation, orage and transport of heat. With existing cloudiness, ratios of I to present value are timated as: Tertiary 1.09, Quaternary glacial 0.87, interglacial 1.02. These are attributed primary and secondary cycles of convective disturbance in the sun. *Subject Headings:* **Geological climates 2. Solar physics.**—*C.E.P.B.*

MICROCLIMATOLOGY

See also: **Stooling node temp. measurement of winter crops, winter period** (Rozenfel'd, Riabova), 4.9–125; **Cold desert, Central Tien Shan** (Kashkarov, Zhukov, Staniukovich), 4.9–207.

4.9–219 551.584.43:551.525.2:632

Daigo, Y. and Maruyama, E. (*Cent. Met. Obs.*), **Micrometeorological study on the effect straw-matting.** *Journal of Agricultural Meteorology*, 7(2):74–76, June **1952.** 2 figs., ble, 2 eqs. English summary p. 76. **MH-BH**—A comparison of the surface soil temperature ground covered with straw matting and bare ground shows that the minimum temperature 2°C lower and the maximum temperature 5.8°C higher in the latter than in the former. A athematical procedure is presented for determining the relationship between diurnal range surface temperature of straw matting with the diurnal range of the uncovered ground and e diurnal range of the ground surface temperature under the straw matting with the minimum ound surface temperature under the straw matting. *Subject Headings:* **1. Soil surface mperatures 2. Mulch.**—*I.L.D.*

4.9–220 551.584.61:551.524

Dirmhirn, Inge, **Über das Klima in den Wiener Strassenbahnwagen.** [The climate in ienna streetcars.] *Wetter und Leben*, 4(9/10):158–162, Dec. **1952. MH-BH**—The seasonal ıriations in temperature cooling power (measured by the katathermometer) and relative ımidity were investigated during various hours of the day and their relationships to the ıultaneously prevailing outside temperature were examined. Data on differences in tem- ɛrature and cooling power between streetcar and outdoors are given in tables. *Subject eadings:* **1. Streetcar climates 2. Air temperatures 3. Cooling power 4. Vienna, Austria.** -*I.L.D.*

4.9–221 551.584.61:631.344.4

Schubach, Karl, **Lufttemperatur und Luftfeuchtigkeits-Untersuchungen im Gewächshaus, n Beitrag zum Gewächshausklima.** [Air temperature and humidity investigations in the eenhouse, a contribution to greenhouse climate.] *Germany. Deutscher Wetterdienst in der S-Zone, Berichte*, No. 42:27–30, **1952.** 2 figs., 4 tables, 3 refs. **DWB**—Observations at fferent points in and around a greenhouse at Giessen in summer 1947 are summarized (morn- g, midday and extremes, clear and cloudy weather, air and soil temperature and relative ımidity). *Subject Heading:* **1. Greenhouse climate.**—*C.E.P.B.*

4.9–222 551.584.61:69

Subrahmanyan, K. and Majumdar, N. (*India Inst. of Hygiene and Public Health*), **A udy of the effect of different wall and roof materials of buildings on indoor thermal conditions.** *ournal of Scientific and Industrial Research*, 11A(9):402–410, Sept. **1952.** 5 figs., 4 tables. **WB**—Measurements made in Chittarajan, India, in seven houses with a similar pattern ıt built of different wall and roof material are reported. Construction of the houses is

described and shown in diagrams. Graphical and tabulated data are presented on outsid temperature, roof temperature, and wall temperature at various distances from the roof It is found that roof material has a far more noticeable effect on indoor temperature than wal material. The coolest house in summer was one with brick walls 10 in. thick and a jack arc roof with lime concrete terracing. *Subject Headings:* **1. Indoor temperatures 2. Buildin materials 3. Building construction.**—*G.T.*

4.9–223 551.584.61:551.52

Wächtershäuser, H., **Beitrag zum Stallklima.** [Contribution to barn climate.] *Germany Deutscher Wetterdienst in der US-Zone, Berichte*, No. 42:382–384, **1952.** 4 figs., 3 tables **DWB**—Summary of records of temperature in a cowshed at Giessen compared with open *Subject Heading:* **1. Barn temperatures.**—*C.E.P.B.*

4.9–224 551.584.

McMinn, Robert G. (*Univ. of Brit. Columbia, Vancouver*), **The role of soil drought in th distribution of vegetation in the Northern Rocky Mountains.** *Ecology*, 33(1):1–15, Jan. 1952 7 figs., 3 tables, 5 refs. **DWB**—Seven plant associations of grassland, shrub and forest wer investigated during a single summer in order to determine differences in soil drought, duratio of growth, water and soil temperature among the various associations. Precipitation record were kept and soil temperature measurements were made. It was found that there was gradient of soil temperature from grassland to forest; the grassland soils were the warmest Soil drought up to a depth of 1 m was earliest and deepest in the grassland and later in th shrub and forest associations. *Subject Headings:* **1. Soil climates 2. Soil moisture gradien 3. Vegetation influences 4. Soil drought 5. Northern Rocky Mountains, Canada.**—*I.L.D*

CLIMATIC CLASSIFICATION

See also: **Drought, 1950, Yugoslavia** (Obuljen), 4.9–187; **Cold desert, Central Tien Shan** (Kashkarov, Zhukov, Staniukovich), 4.9–207; **Climatotherapy, island and coastal climates** (Berg), 4.9–237.

4.9–225 551.585.5:581.5

Whaley, Gordon W., **Arid lands and plant research.** *Scientific Monthly*, New York 75(4):228–233, Oct. **1952.** figs. **DLC**—Short of believing in the feasibility of supplyin water to vast desert areas by irrigation, artificial precipitation or sea-water desalting, th author finds in the cultivation of drought-resistant plants a limited means of improvin agricultural productivity and arid and especially in semi-arid regions. *Subject Heading* **1. Continental climates 2. Plant ecology.**—*G.T.*

4.9–226 551.585.53:0

United Nations. Educational, Scientific and Cultural Organization. Advisory Com mittee on Arid Zone Research, **Report of the Second session, Sept. 3–5, 1951, Paris.** Paris Sept. 7, **1951.** 35 p. **DWB**—Includes list of participants, officers, recommendations, severa statements of work of various institutions concerned with zone problems, especially those i the Sahara region, a list of publication of Laboratory of Saharan Biology (and soils), and a lis of countries having arid or semi-arid areas, by regions. *Subject Headings:* **1. Arid zone researc 2. International organizations 3. UNESCO. Advisory Committee on Arid Zone Research.**— *M.R.*

4.9–227 551.585.5

†Tsyganov, M. S., **K voprosu o vysykhanii stepeĭ.** [The problem of drying out of th steppes.] *Pochvovedenie*, Moscow, No. 4:367–373, April **1952.** 49 refs. **DLC**—Author discus ses his assumption that the Russian steppes are drying out and opposes the theory of BERG tha climatic zones are moving from north to south. A valuable bibliography on this subject i added, giving 41 Russian and a few foreign papers. *Subject Headings:* **1. Steppes 2. Ari zones 3. U.S.S.R.**—*A.A.*

4.9–228 551.585.7(236.1)

*Beier, Erwin (*Baden near Vienna*), **Klima und Leben im östlichen Hohen Atlas.** [Climate and life in the eastern High Atlas.] *Wetter und Leben*, 4(9/10):153–158, Dec. **1952.** fig., 5 refs. **MH-BH**—Curves of thrice daily observations of temperature and relative humidity made for 20 days during July and Aug. 1951 at an elevation of 1920 m in the High Atlas are given and the mean, minimum and maximum daily amplitudes of temperatures, diurnal march of relative humidity, precipitation and wind direction are discussed. The general characteristics of the climate of this region as derived from the literature and the role of climate in animal and plant life and in human activity—agriculture—are discussed. *Subject Headings:* **1. Mountain climates 2. Observational data 3. Human ecology 4. Atlas Mountains.**—*I.L.D.*

BIOCLIMATOLOGY

See also: **Dew point and barometric pressure relation to chapping of normal skin** (Gaul, Underwood), 4.9–150; **Climate and respiratory infections** (Waddy), 4.9–153; **Sultry zones of earth** (Scharlau), 4.9–212.

4.9–229 551.586:59

Bardeldin, A. L. and Ghany, M. A. (*Fac. of Agric., Fouad I Univ., Cairo*), **Adaptive mechanisms of buffaloes to ambient temperature.** *Nature*, London, 170(4324):457–458, Sept. 13, **1952.** fig., 7 refs. **DWB**—Nonpregnant buffalo cows were exposed successively to shade and sunlight and their respiration rates, body temperatures and pulse rates were measured. On exposure to sunlight the respiration rate increased immediately while the rise in body temperature and pulse rate was delayed. When the animals were removed to the shade the respiration rate was also first to decline. The respiratory tract appears as the first means for dissipating heat and the pulse rate stimulates the peripheral circulation. The black pigmented skin because of its absorption of infrared rays limits adaptability to sunlight but aids dissipation of heat in the shade. Also the thick skin may prevent heating of the body from hot air and by radiation from the sun or hot ground. *Subject Headings:* **1. Animal climatology 2. Heat tolerance.**—*I.L.D.*

4.9–230 551.586:59

Bonsma, Jan C., **Ecological animal husbandry research and its application in maintaining a permanent pastoral industry.** (In: Specialist Conference on Plant and Animal Nutrition in Relation to Soil and Climatic Factors, Australia, 1949, **Proceedings, 1951.** p. 364–381. 5 figs., 5 tables, refs.) **DWB**—A discussion of physiological climatology of cattle under the climatic conditions of South Africa is presented. The tolerance of breeds to atmospheric temperatures, the effect of coat characteristics of different breeds upon heat tolerance, and the change of heat tolerance (as measured by body temperature, respiration rate and pulse rate) with age for different breeds are discussed on the basis of experiments, the results of which are given in graphs and tables. *Subject Headings:* **1. Animal climatology 2. Heat tolerance 3. South Africa.**—*I.L.D.*

4.9–231 551.586:59

Howie, J. W., **Climatic influences on the nutrition of suckling pigs.** (In: Specialist Conference on Plant and Animal Nutrition in Relation to Soil and Climatic Factors, Australia, 1949, **Proceedings, 1951.** p. 357–364. table, 15 refs.) **DWB**—The author presents experimental evidence for the proposition that cold, damp draughts are the main causes of mortality of suckling pigs. Statistical data showing the effect of climatic conditions, such as excessive cooling on nutritional states are given. The mechanism whereby cooling operates excessively involves an excessive expenditure of energy to maintain body heat, and contraction of peripheral blood vessels produces cardiac failure. *Subject Headings:* **1. Animal climatology 2. Cooling effects 3. Pigs.**—*I.L.D.*

4.9–232 551.586:59

Lee, D. H. K., **Direct relationships between climate and animal welfare.** (In: Specialist Conference on Plant and Animal Nutrition in Relation to Soil and Climatic Factors, Australia, 1949, **Proceedings, 1951.** p. 9–27. 3 tables, refs.) **DWB**—With reference to animals,

climatic classification must be based upon a suitable single index expressing the combined effect of the climatic variables upon the animal. The author reviews briefly the effect of the individual climatic elements upon heat exchange and the necessary data on radiation (direct solar radiation, reflected solar radiation from sky, and ground radiation exchange with general environment and radiation to outer space), air temperature and humidity, and air movement needed for analyzing this heat exchange between organism and environment. The nature of the physiological reactions elicited by changes in thermal balance and special climatic effects produced by radiation such as erythema and light sensitivity, skin wetness, dust and chemical properties of the atmosphere are considered. The KÖPPEN and THORNTHWAITE climatic classification schemes are outlined and a climatic index, a measure of thermal stress applied to an animal and relating the applied stress and a physiological strain are formulated and a theoretical relationship is proposed: it is: $y=x\{1-e^{-ax^2}\}$, where x is applied stress, y—resultant physiological strain and constant varying for each animal. *Subject Headings:* **1. Animal climatology 2. Climatic indexes.**—*I.L.D.*

4.9–233 551.586:59:551.577

Mostert, J. W. C. (*Agric. Col., Glen*), **Africander cattle on mixed red grass.** *Farming in South Africa*, 27(320):497–501, Nov. **1952.** 4 figs., 4 tables, 2 refs. **DA**—An experiment is described in which cattle grazed on a limited veld from Oct. 1947 to Oct. 1951. Data on weight gains and rate of stocking are compared with monthly and cumulative rainfall data in tabular and graphical form. A good positive correlation is disclosed between ample precipitation and the gains in weight. *Subject Headings:* **1. Animal ecology 2. Precipitation.**—*G.T.*

4.9–234 551.586:59

Schmölzer, Karl (*Innsbruck*), **Der Einfluss des Klimas auf die tierische Besiedlung der Hochalpen am Beispiel der östlichen Brennerberge.** [Influence of climate on animal settlement in the High Alps as illustrated on the eastern Brenner Mountains.] *Wetter und Leben*, 4(9/10):139–145, Dec. **1952.** 13 refs. **MH-BH**—A discussion of the climatic influence in the distribution of the invertebrate fauna from the Woldset to the Amhorspitze (E. Brenner Pass, Tyrol), on elevation of about 2000–2800 m above sea level. The vertical vegetation zones correspond with vertical fauna zones. The various species of invertebrates characterizing each vegetation zone are listed and their presence is explained in terms of the climatic characteristics of each vegetation zone. *Subject Headings:* **1. Animal ecology 2. Bioclimatology 3. Austrian Alps.**—*I.L.D.*

4.9–235 551.586:612(02)

Hellpach, Willy, **Geopsyche. Die Menschenseele unter dem Einfluss von Wetter and Klima, Boden und Landschaft.** [Geopsychics. The human psyche under the influence of weather and climate, soil and landscape.] 6th ed. Stuttgart, Ferdinand Enke, **1950.** 271 p., 13 figs. **GB-MO**—The 6th ed. of this well-known book includes a great deal of new material. Pt. I, deals with weather and psyche—relaxing weather (thunder, sultriness, föhn, etc.) and bracing weather, the effect of various elements (temperature, radiation, heat balance, humidity, wind, air composition, pressure, electricity), weather sensitivity and the difficulty of theory. Pt. II discusses effect of different climates, psychological acclimatization, annual daily, lunar and "cosmic" rhythms, and artificial climate. Pt. III discusses relation with soil, including temperature, radiation, composition and electricity, and Pt. IV, the rather subjective effect of landscape and light. Appendixes discuss rational bioclimatology and summarize a great amount of literature (there is no true bibliography). *Subject Headings:* **1. Bioclimatology 2. Weather effects 3. Textbooks.**—*C.E.P.B.*

4.9–236 551.586:612.2

Hentschel, G., **Meteorotropismus im Tagesrhythmus des menschlichen Befindens.** [Meteortropism in the daily rhythm of human health.] *Angewandte Meteorologie*, 1(9):283–288, Feb. **1953.** fig. 3 tables, 9 refs. **DWB**—Observations of physical and mental state and of aches and pains in tuberculosis hospitals were compared with cloud conditions. Clear relation was found with state of sky, especially near fronts, the normal morning cloud minimum and afternoon maximum being associated with an afternoon maximum of sensitiveness. With unchanging cloud conditions the normal daily variation of sensitiveness was largely sup-

pressed but cloudless sky or stratus without higher cloud brought considerable improvement at all times of day. *Subject Headings:* **1. Weather sensitivity 2. Biometeorology.**—*C.E.P.B.*

4.9–237 551.586:615.8:551.585.1

Berg, Hellmut (*Köln*), **Die Bedeutung des Insel- und Küstenklimas für die Klimatherapie.** [Importance of island and coastal climated for climatotherapy.] *Geofisica Pura e Applicata*, 21:71–85, 1952. 14 figs., table. German and English summary p. 71–72. **DWB**—From the point of view of bioclimatology there is a profound distinction between marine and maritime climate. On the basis of the annual temperature regime along the North Sea coast nearby islands, the North Sea and Florida, the author shows that only the narrow transition zone (about 5 km) between marine and land climate is of therapeutic importance. The microclimate within the narrow strip is very variable as is indicated by variations in air temperature. Cloudiness and aerosol characteristics for the coastal strip along the North Sea coast up to the Munster Inlet are described. The effect of sea air upon various physiological processes such as appetite, circulatory and nervous systems is discussed and its therapeutic value in cure of various types of tuberculosis, of skin diseases and in convalescence are considered. *Subject Headings:* **1. Climatotherapy 2. Seaside resorts.**—*I.L.D.*

4.9–238 551.586:615.8

Jungmann, H., **Über den Einfluss der vegetativen Struktur des einzelnen Menschen auf den Erfolg klimatischer Behandlung.** [On the influence of the vegetative structure of individual man on response to climatic treatment.] *Annalen der Meteorologie, Medizin-Meteorologische Hefte*, No. 8:15–21, **1953.** 4 figs., 12 refs. **DWB**—Patients were classified according to their favorable or unfavorable reaction to North Sea coast or to mountain climates. Different types were found to have different elasticity coefficients of circulation (partly dependent on age), which are regarded as symptoms of different vegetative structure. *Subject Heading:* **1. Climatotherapy.**—*C.E.P.B.*

ENVIRONMENTAL INFLUENCES

See also: **Temp. distribution near ground** (Chiba), 4.9–120; **Fog proof coefficient of forest near Ochiishi** (Matsui), 4.9–172.

4.9–239 551.588.1(4)

Holm, Karl-Friedrich, **Die thermische Kontinentalität in Europa während der "Normalperiode" 1901–1930 und ihre Schwankung.** [The thermal continentality in Europe during the normal period 1901–30 and its variations.] *Petermanns Geographische Mitteilungen*, 97(1):26–30, **1953.** 3 charts, 2 tables, 20 refs., 4 eqs. **DLC**—Using Gorczynski's formula $A \operatorname{cosec} \phi$ where A is annual amplitude of temperature from monthly means, continentality is calculated for many places in Europe for A, 1851–1880; B, 1881–1900; C, 1901–30. Isolines are drawn for C and differences $B–A$ and $C–B$. Changes $B–A$ are mostly small but $C–B$ shows a marked decrease of continentality over nearly all Europe. *Subject Headings:* **1. Continentality 2. Europe.**—*C.E.P.B.*

4.9–240 551.588.2:63(43)

Hesse, W., **Karte der Vegetationsperiode.** [Chart of the vegetation period.] *Angewandte Meteorologie*, 1(9):276–278, Feb. **1953.** fig., 5 refs. **DWB**—A chart is given of the German Democratic Republic showing length in days of period between beginning of snowdrop flowering and date when temperature falls to 5°C. *Subject Headings:* **1. Agricultural meteorology 2. Germany.**—*C.E.P.B.*

MISCELLANEOUS APPLICATIONS

COSMIC INFLUENCES

See also: **Relation: electrical and diffusion currents** (Johnson), 4.9–258.

4.9–241 551.590.21:621.396.812.5

Wüsthoff, P. and Grunenberg, J., **Bemerkungen über die Zusammenhänge zwischen Funkwellenausbreitung und Meteorologie.** [Remarks on the connections between radio

wave propagation and meteorology.] *Germany. Deutscher Wetterdienst in der US-Zone, Berichte*, No. 42:213–217, **1952.** 3 figs., 11 refs. **DWB**—Diurnal variations of F2 critical frequency at Lindau are compared in each month 1951 and 1952 and discussed in relation to sunspot numbers. *Subject Headings:* **1. Radio wave propagation 2. Sunspot effects.**—*C.E.P.B.*

4.9–242 551.590.22

Papavramidis, Basil D., **De la relation existante entre les phases de la lune et la prévision du temps.** [On the existing relation between the phases of the moon and the forecasting of weather.] 9 p. 3 figs. Manuscript. Signed Grevena, Greece, Jan. 22, **1949. DWB**—Atmospheric tides, produced by the combined effect of sun and moon, create vertical movements in the atmosphere and even act on individual water droplets to increase the probability of precipitation at certain phases of the moon, according to this novel theory. No verification is attempted. *Subject Headings:* **1. Lunar influences 2. Atmospheric tides.**—*M.R.*

4.9–243 551.590.24:551.524.7

Kitaoka, Tatsumi, **Upper air observations during the time of eclipse on Sept. 12th 1950.** *Tateno, Japan. Aerological Observatory, Journal*, 5(1):96, March **1951. DWB**—Abstract of paper presented at meeting. Observations made at three locations in Japan. A remarkable decrease of temperature in the upper atmosphere above the tropopause took place at the time of eclipse. *Subject Headings:* **1. Solar eclipse effects 2. Upper air temperatures.**—*A.A.*

VISIBILITY

See also: **Physics of dusty atmos.** (El-Fandy), **4.9–71.**

4.9–244 551.591.2(42) 551.591.36

*Great Britain. Meteorological Office, **Frequencies of poor afternoon visibilities in England and Wales. 1952.** 2 p. 3 figs., 2 tables. Mimeo. M.O. 19. **GB-MO**—For 61 stations table 1 gives average days per season and year for 1923–51 with visibility less than 4400 yards and 6¼ mi at 12 or 15 h. Monthly means are grouped for town, country and coastal stations. Isolines are drawn for annual values. *Subject Headings:* **1. Visibility data 2. England 3. Wales.**—*C.E.P.B.*

4.9–245 551.591.361

Steinhäusser, Hans, **Fernsicht und Flugsicht.** [Unusual visibility and visibility from the air.] *Naturwissenschaftliche Rundschau*, 6(4):148–151, April **1953.** 3 figs., 2 refs. **DWB**—A summary is given of the physics and physiology of visibility, with applications to visibility from mountains and from an aircraft. *Subject Heading:* **1. Exceptional visibility.**—*C.E.P.B.*

4.9–246 551.591.6

Murphy, Joseph S., **What's the weather on the runway?** *American Aviation*, Wash., D. C., 16(6):24, Aug. 18, **1952. DLC**—A project for investigating approach visibility and means of improving pilots' information on approach weather conditions is announced. The project is based on a $285,000 contract awarded by Air Navigation Development Board to Sperry Gyroscope Company, calling for 1000 test approaches at MacArthur Field, Long Island. Ten U. S. Weather Bureau specialists are to participate. First tests were scheduled for Sept. 1, 1952. A diagram showing runway with experimental equipment is presented. *Subject Headings:* **1. Aircraft landing aids 2. Visibility from airplanes 3. Slant visibility 4. Long Island, N. Y.**—*G.T.*

OPTICAL PHENOMENA

See also: **Optical soundings of atmos.** (Bruch, Clastre), **4.9–49.**

4.9–247 551.593.1:535.4:681.1

Anderson, L. J. (*Res. Div. U. S. Navy Electronics Lab.*), **Calculator for atmospheric refractive index.** *U. S. Navy Electronics Laboratory, Report*, 279, March 18, **1952.** 7 p.

figs. (fold.). **DWB**—The calculator, developed at NEL, provides a simple and accurate ethod of obtaining true and modified refractive-index values from temperature, humidity, nd altitude data. Its principal advantage over other refractive-index calculators is that nly one setting is required per value. Base diagrams are provided for humidity expressed s either dewpoint or wet-bulb temperature. Rotor diagrams are supplied for calculation of ither true or modified refractive index. *Subject Headings:* **1. Electronic computers 2. Atmospheric refraction 3. Refractive index. I. U. S. Navy Electronics Laboratory, San Diego, alif.**—*Author's abstract.*

4.9–248 551.593.1

Clemence, G. M., **Refraction near the horizon.** *Navigation*, Los Angeles, 3(1/2):36–41, ept./Dec. **1951.** fig. **DLC**—This study concludes: 1) that CHARLES H. SMILEY's 6252 bservations of the sun's vertical diameter when it was near the horizon disagree with both ne theory of astronomical refraction and with author's observational data (given in table) nd 2) accuracy of the theory of refraction is confirmed. SMILEY's systematic errors are due o irradiation, which causes sun's measured diameter to be larger than the true value. *Subject Headings:* **1. Atmospheric refraction 2. Sun's diameter. I. Smiley, Charles H.**—*W.N.*

4.9–249 551.593.1:629.12

Fletcher, A., **Astronomical refraction at low altitudes in marine navigation.** *Institute of Navigation, London, Journal*, 5(4):307–330, Oct. **1952.** 5 tables, 24 refs., 4 eqs. **DWB**—Refraction theory is summarized and various tables compared. The influence of the temperature gradient near earth's surface, variation of refraction with temperature and pressure, nd other causes of error are described. Tropical and polar refractions need special investigation; meanwhile existing standard tables should be used. *Subject Headings:* **1. Atmospheric efraction 2. Marine navigation.**—*C.E.P.B.*

4.9–250 551.593.1:551.594.7(261.3)

Lauter, Ernst A. and Bartels, G. (*Met. Obs. Kühlungsborn, Germ.*), **Optische Refraktion nd Ultrakurzwellenausbreitung im Ostseeraum im Frühjahr 1952.** [Optical refraction and ropagation of ultrashort waves in the Baltic Sea area spring 1952.] *Zeitschrift für Meorologie*, 6(7):215–220, July **1952.** 7 figs., 2 refs. **DWB**—Unusually strong refraction henomena observed at the Met. Obs. Kühlungsborn, N. Germany, March 14, April 17 and Iay 2, 1952, are described in detail and compared with the synoptic situation and with ltrashort-wave propagation investigated at the same time. It was found that variations n optical refraction index are not always in a direct relationship to variations in ultrashortvave reception field intensity. The considerable effect of horizontal atmospheric heteroeneity on the propagation of ultrashort waves is stressed. *Subject Headings:* **1. Refraction henomena 2. Ultrashort wave propagation 3. Baltic Sea.**—*G.T.*

4.9–251 551.593.11

Abnormal refraction. Cabot Strait, Gulf of St. Lawrence. *Marine Observer*, 23(160):77–8, April **1953.** 2 figs. **DWB**—May 30, 1952, in a superior mirage a refracted horizon was een at elevation 6½′ with duplications of land features. Later refracted horizon rose to 9′, ith inversion of land features as well as duplication. *Subject Heading:* **1. Mirages.**—*C.E.P.B.*

ELECTRICAL PHENOMENA

See also: **Auroral radio echo geometry** (Chapman), 4.9–34; **Constitution of upper atmos. from auroral studies** (Harang), 4.9–68; **Electric charge distribution effect on ageing of aerosol** (Gillespie), 4.9–159; **Optical refraction and ultrashort wave propagation, Baltic Sea, spring 1952** (Lauter, Bartels), 4.9–250.

4.9–252 551.594:621.315

Chalmers, J. A., **Negative electric fields in the atmosphere.** *Nature*, London, 169(4295): 36, Feb. 23, **1952.** 2 refs. **DWB**—Letter stating that negative electric fields reported in ist and low cloud have now been traced to discharges from pylons. *Subject Heading:* **. Atmospheric electricity.**—*C.E.P.B.*

4.9–253 551.594.11

Hatakeyama, H. and Hudimoto, S., **On the potential gradient and the space charge in the lower stratum of the atmosphere.** *Geophysical Magazine*, Tokyo, 23(1):15–20, Dec. **1951.** 4 figs., 6 refs. **MH-BH**—A thin wire was attached to the moving wire rope of a captive balloon. Measuring the electric current flowing to the earth through this wire and the voltage of the wire, when it was insulated from earth, the atmospheric electric potential was computed combining these two values. Results of a few actual measurements are presented: fracto-cumulus and haze layer during fair weather and fracto-nimbus during rainy weather. *Subject Headings:* **1. Potential gradient measurements 2. Atmospheric electricity.**—*A.A.*

4.9–254 551.594.12:551.521.64

Clay, J., **Ions and condensation nuclei in the atmosphere, balance of ions and value of cosmic radiation at sea level.** *Journal of Atmospheric and Terrestrial Physics*, 3(3):132–140, April **1953.** 6 figs., 4 tables, 12 refs. **MH-BH**—Various measurements of ionic spectrum over the oceans are quoted and it is found that results depend on limiting mobility. Numbers of condensation nuclei and ions counted on voyage from Holland to Indies are tabulated. Over oceans, the main source of ions (1.66/cc/sec in 52°N) is cosmic radiation. Observations in Amsterdam gave (ions/cc/sec): Cosmic radiation 1.66, Gamma radiation of soil 1.70, random 2.3–6.7. *Subject Headings:* **1. Cosmic radiation 2. Ionization.**—*C.E.P.B.*

4.9–255 551.594.12:551.521.63:551.510.535

Lindquist, Rune (*Ionospheric Res. Lab., Pa. St. Coll.*), **An investigation of the ionizing effect in the E-layer near sunrise.** *Journal of Geophysical Research*, 57(4):439–458, Dec. **1952.** 9 figs., 31 eqs. **MH-BH.** Also in: Pennsylvania. State College. Ionospheric Research Laboratory, Contract AF 19(122)-44, Scientific Report, No. 34, March 20, **1952.** 59 p. 18 figs., 41 tables, 20 refs., 38 eqs. **DWB**—This paper discusses the pre-sunrise decrease in height of the reflection point noted in 150 kc/sec vertical incidence group height recordings. It is shown that the local time of this decrease has a pronounced seasonal variation. The total number of particles along the sun ray to the reflection point where the height decrease begins has been computed. This number is almost constant throughout the year, yielding a value of about 3.3×10^{20} atmospheric particles. By considering the composition of the upper atmosphere, it is shown that the only constituent which might possibly be subject to the pre-sunrise ionization is O_2. The corresponding solar radiation should have $\lambda>910$ Å. The value for the absorption coefficient of O_2 obtained from these considerations is $K_{O_2}=(3.3\pm2.1)\times10^{-19}$ cm². It is shown that the pre-sunrise ionization is not due to a pure screening effect. *Subject Headings:* **1. Ionosphere 2. Dissociation 3. Ionization 4. E layer.**—*Author's abstract.*

4.9–256 551.594.13

Callahan, Rita C., Coroniti, S. C., Parziale, A. J. and Patten, R., **Electrical conductivity of air in the atroposphere.** *Journal of Geophysical Research*, 56(4):545–551, Dec. **1951.** fig., 3 tables, 7 refs., 2 eqs. **DWB**—Extensive aircraft measurements made over the U. S. A. from Feb. to Nov. 1950. No significant daily, seasonal or geographical variation was found above a few km. Positive conductivity equal to negative up to 35,000 ft. Electric conductivity decreased in haze. Observed values show good agreement with THOMSON's theory of volume recombination of oppositely charged small ions. Above a few km the cosmic radiation is the only important source of small ion production. *Subject Headings:* **1. Electric conductivity of air 2. Cosmic radiation 3. Ion production 4. United States.**—*A.A.*

4.9–257 551.594.13:551.510.535

Israël, Hans, (*Landeswetterdienst Württemberg-Hohenzollern*), **Die Höhe der luftelektrischen Ausgleichsschicht.** [Height of the atmospheric electric compensation layer.] *Annales de Géophysique*, 8(2):253–257, April/June **1952.** fig., table, 14 refs. French and German summaries p. 253. **DWB**—In this supplement to an earlier paper (H. Israël and H. W. Kasemir: "In welcher Höhe geht der weltweite luftelektrische Ausgleich for sich?," *Annales de Géophysique*, 5:313–324, 1949) the author points out that recent information on the ionization of the D-layer eliminates the uncertainty about the increase in conductivity in the strato-

phere. The height of the layer, in which the global compensation of atmospheric electricity akes place is put at about 65 km. *Subject Headings:* **1. Atmospheric conductivity 2. D-ayer.**—*G.T.*

4.9–258 551.594.13:551.510.535:551.590.22

Johnson, M. H. (*Rad. Lab., Univ. of Calif.*), **The relation between electrical and diffusion urrents.** *Journal of Geophysical Research*, 57(3):405–412, Sept. **1952.** 2 figs., 10 refs., 4 eqs. **DWB**—A linear relation between the electrical current through a gaseous conductor n a magnetic field and the diffusion currents of the charge-bearing particles is deduced from he kinetic theory of diffusion. For conduction by positive ions and electrons, a magnetic ield does not alter the diffusion currents parallel to the electrical current, but does move the ons and electrons together transversely to the electrical current, to the magnetic field. The resence of additional negative ions can enhance transverse electronic diffusion and causes ew components of the diffusion currents to appear along the magnetic lines of force. By his linear relation, the vertical lunar displacements of the E-layer are derived from the lunar urrent system in the ionosphere. The derived amplitudes and phases can account for the bserved motions on the hypotheses that the main lunar current flows in the lower part of the E-layer and that approximately equal numbers of negative ions and electrons are present at the oint of observation. *Subject Headings:* **1. Ion mobility 2. Ionosphere 3. Lunar influences.** —*Author's abstract.*

4.9–259 551.594.13:551.510.535:525.6

Lucas, Ilse, **Leitfähigkeit der Ionosphäre und erdmagnetische Gezeiten.** [Conductivity of the ionosphere and geomagnetic tides.] *Naturwissenschaften*, 40(8):239, April 2, **1953.** 2 figs., table, 6 refs., 2 eqs. **DWB**—Differential equations of current system of tidal effect are set out. The results of integration are shown in a diagram of monthly mean closed current system of lunar tide on day side of earth and variation with height (100–300 km) above earth's surface in 0° and 40° lat. *Subject Headings:* **1. Ionospheric currents 2. Atmospheric tides.**— *C.E.P.B.*

4.9–260 551.594.13

Norinder, H. and Siksna, R., **Continued measurements of the variation characteristics of the density of small-ions.** *Arkiv för Geofysik*, Stockholm, 1(2/4):149–158, **1951.** 19 figs., 2 refs. **MH-BH**—The measurements were carried out at about winter solstice in 1948 and at about summer solstice in 1949. From June 10 through June 22, 1949, uninterrupted observations were taken at one station and parallel measurements at two stations from June 26 through July 4, 1949. Data on ion density in relation to wind, rain, humidity, as well as to a thunderstorm region, are given. It is found that the ion density and the amplitude variation are higher in summer than in winter. *Subject Heading:* **1. Atmospheric ion density** —*W.N.*

PART II. SELECTIVE ANNOTATED BIBLIOGRAPHY ON THE CLIMATOLOGY AND MARINE METEOROLOGY OF THE PACIFIC

By: *Mollie P. Kramer*

INTRODUCTORY NOTE

The following bibliography represents the first in a series on marine meteorology and climatology to appear in subsequent issues of *Meteorological Abstracts and Bibliography*. During the last two years an extensive search of the pertinent literature at the Library of Congress and the libraries at the University of California, Berkeley, the U. S. Weather Bureau, the U. S. Hydrographic Office and the Woods Hole Oceanographic Institution has been carried out. From the mass of material assembled, the following items have been selected as representative of the literature on the marine meteorology and climatology of the Pacific, its island groups and selected coastal regions and marginal seas. Articles not primarily regional in their approach have generally been omitted with the intention of including them in later bibliographies on the more physical aspects of oceanography such as **Energy exchange between the ocean and atmosphere** and **Wind waves and currents.** Articles on a few subjects such as typhoons (4I–36, –37, –92), the influence of the Pacific Ocean on conditions in coastal areas (4I–31, –66) and long range forecasting (4I–28, –104) have been included merely as random examples of the vast literature in those fields. Regional studies of the Australasian area and Japan have also been omitted as they are sufficiently numerous of themselves to warrant separate publication. (Note: for **"Climate of Australia and New Zealand,"** *see MAB*, Vol. 4, No. 4, April 1953; and a bibliography on the **"Climate of Southeast Asia and the East Indies"** will appear in *MAB*, early in 1954.)

The mass of literature has been grouped into geographical divisions according to the regional breakdown described below. The scheme represents an attempt to take account of the characteristic meteorological regions of the Pacific (e.g., Trade Wind Belts, Equatorial Calms), to avoid unnecessary splitting of island groups, and to use as far as practicable the geographic terminology most often encountered in literature. The 12°N and 12°S parallels have been chosen as arbitrary dividing lines between the Equatorial Pacific and the North and South Pacific, respectively, although it is recognized that the border lines to the Equatorial Pacific should ideally be delineated by flexible boundaries responsive to the North–South movements of the Trade Winds. Bering Strait and the 55°S parallel (Cape Horn to 150°E) mark the northern and southern limits, respectively, to the Pacific Area under consideration. The International Date Line, following in general the 180° meridian in the Northern Hemisphere and the 180° and 173°W meridians in the southern has been used to divide the West Pacific from the Central Pacific. To avoid bisecting the Hawaiian or Marquesas Island groups or the Tuamotu Archipelago the arbitrary boundary between the East Pacific and Central Pacific has been set as follows: 150°W meridian from Alaska to 12°N; approximate NW–SE diagonal from 12°N, 150°W to 12°S, 133°W passing eastward of the numerous Central Pacific islands; 133°W meridian from 12°S to 55°S. The four dividing lines mentioned above split the Pacific into six major areas (North, Equatorial, South, East, Central and West) and nine subdivisions (NW, Central N. NE, etc.). For example, studies of typhoon tracks which generally cross two or more of the major North–South regions of the Pacific still fall as a rule within the western subdivisions of all three and can therefore be found under the geographic heading "West Pacific" in the Outline of Contents. On the other hand, a study of the effect of sea surface temperatures in the Oyashio Current on the climate of Japan would appear under the heading "Northwest Pacific" and one on the climate of the New Hebrides Islands under "Southwest Pacific." No attempt has been made to include an extensive coverage of the literature on "Coastal Regions" and "Marginal Seas" but sample items which it is hoped will lead interested readers to further references have been chosen and can be located in this bibliography by referring to those two headings in the Outline below.

For further references to the Pacific including studies of Hawaiian rainfall, typhoons, the Coral and Tasman Seas and oceanic effects on Australian climate, *see items:* 1–113, 4–56, 7–89, 2B–188, 2B–209, 2.9–158, 3.2–83, 3F–30, 3.7–109, 3.8–111, 3.8–146, 3.10–124, 4.2–112, 4.2–113, 4.2–122, 4.3–246, 4D–35, 4D–38, 4D–49, 4D–97, 4D–127, 4D–131, 4D–141, 4D–148, 4D–173, 4D–182, 4D–195, 4D–197, 4D–215, 4D–260, in previous issues of *Meteorological Abstracts and Bibliography*.

The asterisk (*) has been used to denote a good source of data, the dagger (†), a good source of references and the symbol (§) a source of synoptic material. The library symbol **DN-HO** identifies material most easily obtainable at the U. S. Hydrographic Office library in Suitland, Md. Most of the items included are also to be found in the library of the University of California at Berkeley.

We wish to express our appreciation to Prof. John B. Leighly and Arnold Court of the University of California at Berkeley for their interest and assistance in the preparation of this bibliography and for their valuable advice regarding the geographic breakdown of the Pacific area.

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BIBLIOGRAPHY ON THE CLIMATOLOGY AND MARINE METEOROLOGY OF THE PACIFIC

1827

4I–1 551.582.3(265/6)

von Kruzenshtern, Ivan Fedorovich, **Atlas de l'Océan Pacifique.** [Atlas of the Pacific Ocean.] t. Petersbourg, **1827.** 5 p. 34 charts. **DLC**—Contains 15 Southern and 19 Northern Hemisphere arine meteorological charts. *Subject Headings:* **1. Marine atlases 2. Pacific Ocean.**

1877

4I–2 551.582.2(961.5)

*Holmes, Robert Langley, **The climate of Fiji: Results of meteorological observations made at Delanasau, Bay of Islands, North Coast of the Province of Bua, Vanualevu, Fiji, during the five ears ending Dec. 31, 1875.** *Royal Meteorological Society, Quarterly Journal,* 3(21):260–277, Jan. 877. 6 tables, appends. **DWB**—Valuable contribution to meteorology of the Fiji Islands to hat date including monthly mean (and some maximum and minimum) records of atmospheric ressure, temperature, rainfall, solar and terrestrial radiation and humidity. Other meteorological lements such as fog, sea surface temperature and waterspouts discussed. *Subject Headings:* **. Climate of Fiji Islands 2. Climatic data 3. Fiji Islands, Southwest Pacific.**

1878

4I–3 551.582.3(266.5)

*U. S. Hydrographic Office, **Meteorological charts of the North Pacific Ocean from the equator o latitude 45°N, and from the American coast to the 180th meridian, giving information regarding inds, calms, fog, rain, squalls, weather, barometer, and temperature of the air and of sea water t the surface.** Washington, D. C., **1878.** 3 p. tables, charts. **DN-HO**—Data given on large onthly charts for every five-degree square. Colored charts of stormy regions, wind systems, othermal and isobarometric areas also included. *Subject Headings:* **1. Marine meteorological data North Pacific.**

1887

4I–4 551.515.2(266)

Dabbert, F., **Orkane und Stürme im südlichen Stillen Ozean, in der Nähe der Oster-Insel.** Hurricanes and storms in the South Pacific Ocean, in the vicinity of Easter Island.] *Annalen der Hydrographie und Maritimen Meteorologie,* 15(5):208–210, **1887.** table. **DWB**—Brief account of urricane encountered by a German ship between 29–31°S and 111–112°W giving wind, air pressure, loudiness and wave data. *Subject Headings:* **1. Marine meteorology 2. Storms at sea 3. Easter sland, Southeast Pacific.**

4I–5 551.582.2(935)

Guppy, H. B., **The Solomon Islands and their natives.** London, Swan Sonnenschein, Lowrey & Co., **1887.** 384 p. plates, map. **DLC**—Pages 352–370 include description of climate in Solomon slands and some precipitation, pressure, temperature and wind data. *Subject Headings:* **1. Climate f Solomon Islands 2. Observational data 3. Solomon Islands, Southwest Pacific.**

1895

4I–6 551.582.2(96)

***Das Klima von Jaluit (Marshall Inseln).** [The climate of Jaluit (Marshall Islands).] *Meteorologische Zeitschrift,* 12(7):272–279, July **1895.** tables. **DWB.** Extract from: *Mitteilungen on Forschungsreisenden und Gelehrten aus den Schutzgebieten,* Berlin, 7(4), [1894?]—Data of usual eteorological elements presented and analyzed for Jaluit (5°55′N, 169°40′E) for period Jan.–Dec. 883 and 1893. Wind direction frequencies given for 1893 (8 directions) and hourly observations f pressure, temperature, absolute humidity, relative humidity, wind force, cloudiness and days ith rain and thunderstorms for period March 1893–Feb. 1894. Sea temperatures also included. ocation of instruments noted. Total rainfall was 4.6 m (184 in.) in 1893, with little hourly and onthly variation. Rain fell on 343 days and 1 mm or more on 247 days that year. *Subject Headings:* **1. Climate of Marshall Islands 2. Climatic data 3. Jaluit, Marshall Islands 4. West Equatorial Pacific.**

1895

4I–7 551.553.6(26) 551.577(265/6)

*Köppen, W., **Die Windstärke auf dem Stillen Ozean, nach den Beobachtungen deutscher chiffe für die beiden extremen Jahreszeiten tabellärisch und kartographisch dargestellt.** [Wind ntensity on the Pacific Ocean, based on observations by German ships in the summer and winter easons presented in tabular and map form.] *Annalen der Hydrographie und Maritimen Meteorologie,*

23:250–264, 301–311, **1895.** tables, refs. Also: **Die Regenverhältnisse des Stillen Ozeans.** [Rain conditions on the Pacific Ocean.] *Ibid.*, p. 440–453, **1895.** tables, refs. **DWB**—First paper contains Jan.–Feb. and July–Aug., 1868–1893, data for frequency of various wind velocities on the Pacific Ocean, east of 150°W. Second presents monthly data for rain probability on ocean routes, Cape Horn–California, Cape Horn–Honolulu, Cape Horn–Iquique and Sydney–Samoa. Monthly and annual means also tabulated. *Subject Headings:* **1. Marine meteorological data 2. Winds at sea 3. Precipitation at sea 4. Pacific Ocean.**

1896

4I–8 551.582.3(265/6)

Hamburg. Deutsche Seewarte, **Stiller Ozean. Ein Atlas von 31 Karten, die physikalischen Verhältnisse und die Verkehrsstrassen darstellend . . . Beilage zum Segelhandbuch für den Stillen Ozean.** [Pacific Ocean. An atlas of 31 charts, showing the physical characteristics and the trade routes . . . supplement to Sailing handbook for the Pacific Ocean.] Hamburg, L. Friederichsen & Co., **1896.** 14 p.+31 charts. **DLC**—The 31 large colored charts cover ocean depth, temperature distribution, currents, density; air temperature, pressure and movement; synoptic weather charts and charts of magnetic variation. *Subject Headings:* **1. Marine atlases 2. Pacific Ocean.**

1903

4I–9 551.582(961)

*Burchard, O., **Das Klima von Apia (Samoa-Inseln). Nach 10 jährigen meteorologischen Aufzeichnungen von Dr. Funk.** [The climate of Apia according to 10 year meteorological observations of Dr. Funk.] *Annalen der Hydrographie und Maritimen Meteorologie*, 31(5):193–204, **1903.** 5 figs., 8 tables, refs. **DLC**—Observations of all of the standard meteorological elements made between 1890 and 1899 inclusive summarized, analyzed and tabulated. Data for the 3 observation periods (7, 14 and 21 h) and averages for the day for each year during the period are given. Absolute and relative humidities, cloudiness, wind frequencies to 8 directions, greatest 24 hour rainfall, number of days with rain more than .3, 1.0 and 2.5 mm, thunderstorms, lightning and gales are included and discussed, making this a most valuable contribution to the climate of the region, in spite of its antiquity. *Subject Headings:* **1. Climate of Samoan Islands 2. Samoa, Central South Pacific.**—*M.R.*

4I–10 551.582(968.1)

*Prager, M., **Meteorologie der Gilbert Inseln.** [Meteorology of the Gilbert Islands.] *Annalen der Hydrographie und Maritimen Meteorologie*, 31:348–354, 388–395, **1903.** tables. **DWB**—Pages 348–354 consist of discussion and data (1900–02) for daily variation in air temperature and humidity over land and sea as well as brief comments on cloudiness and rain. Pages 388–395 devoted to wind direction and rotation observations, ocean currents, sea surface temperature and further comments on cloudiness in Gilbert Islands. *Subject Headings:* **1. Climate of Gilbert Islands 2. Gilbert Islands, West Equatorial Pacific.**

4I–11 551.582(967)

Seidel, H., **Klima und Wetter auf den Marianen.** [Climate and weather of Marianas Islands.] *Annalen der Hydrographie und Maritimen Meteorologie*, 31(4):139–144, **1903.** refs. **DLC**—Extensive notes on climate, including temperature, pressure, wind, rainfall, waterspouts and hurricanes, from logs of ships passing or stopping at Guam, etc. between 1693 and 1900. Most of the article is devoted to accounts of typhoons which were reported in the area. *Subject Headings:* **1. Typhoons 2. Climate of Marianas Islands 3. Marianas Islands, Northwest Pacific.**

1904

4I–12 551.515.2(914)

Algué, José, **Cyclones of the Far East.** Special report of the Director of the Philippines Weather Bureau, Manila Observatory. 2nd (rev.) ed. Manila, Bureau of Printing, **1904.** 283 p. figs., tables, plates, fold. charts. **DLC**—Among the first comprehensive treatments of far eastern cyclones, covering nature, origin, structure and movements of the storms; phenomena which generally precede them; and instances and analysis of different types of cyclones. *Subject Headings:* **1. Tropical cyclones 2. Northwest Pacific 3. Philippine Islands.**

1905

4I–13 551.506.1(969)

*U. S. Weather Bureau, **Climatological data, Hawaii Section.** 1905–. tables, charts. Monthly with annual summary. **DWB**—Daily, monthly and annual precipitation tables, monthly climatological data (temperature, precipitation, cloudiness) and charts showing mean temperatures, pre-

bitation and prevailing winds. Also pressure, humidity and sunshine data. *Subject Headings:* **Climate of Hawaiian Islands 2. Climatic data 3. Hawaiian Islands, Central North Pacific.**

1906

4I–14 551.524:551.577.2(966)

*Regen und Lufttemperaturbeobachtungen zu Messieng auf Ponape (Ost-Karolinen). [Rain d air temperature observations at Messieng on Ponape (East Carolines).] *Meteorologische itschrift*, 19:330, 1902; 21:437, 1904; 23:268, 316–317, 1906. tables. **DWB**—Monthly mean d extreme rainfall data (1895–1905) for the Carolines tabulated and briefly annotated. *Subject eadings:* **1. Rainfall data 2. Climate of Caroline Islands 3. Caroline Islands, West Equatorial cific.**

4I–15 551.582(265/6)

Westerman, R., **Der meteorologische Äquator im Stillen Ozean.** [The meteorological equator the Pacific Ocean.] *Aus dem Archiv der Deutschen Seewarte*, Hamburg, 29(1), 1906. 27 p. s., 5 tables, plate. **DLC**—One of the earliest and most systematic attempts to describe quantitavely the meteorological characteristics of the equatorial regions and to locate and define the meorological equator. The simplest model would locate the meteorological equator at the line where mperature, pressure, rainfall, moisture and wind fall off (or rise) uniformly on each side at any ven season. The more realistic models presented here, based on thousands of ships' observations, ow the actual distribution to be rather symmetrical than unidirectional on each side—that is mperature rises and then falls as one goes N or S from the "equator." Each of the elements, cluding cloudiness, is discussed in connection with the "equator," and data from many ships and and stations in the Pacific are analyzed and synthesized in numerous ways. Seasonal charts eb., May, Aug. and Nov.) for the entire Pacific Ocean from 15°N to 15°S give isotherms, wind eas and rainfall frequencies. *Subject Headings:* **1. Meteorological equator 2. Pacific Ocean.**—*R.*

1910

4I–16 551.506.1(265/6)

Great Britain. Meteorological Office. [**Meteorological observations made in British Colonies d Protectorates, and summarized in the Annual Reports of the Colonial Governments.**] Excerpted d distributed by the Meteorological Office, London, **1910–.** Ellice Islands. Meteorological rvice, **Meteorological observations at Funafuti, Ellice Islands, 1935–.** Fanning Island. Meteorogical Service, **Meteorological observations, 1935–.** Ocean Island. Meteorological Service, **eteorological observations, 1935–.** Mostly tables. **DWB**—Ellice Islands (8°30′S, 179°13′E) bservations, 1935–1947 are available at the Weather Bureau, Washington. Fanning Island °55′N, 159°23′W) observations for 1935–1941 and 1944–1947 available at the Weather Bureau, ashington. 1942–1943 data are unreliable. Ocean Island (0°52′S, 169°35′E) observations for 35–1940 are available at the Weather Bureau, Washington. Observations were suspended Dec. 41–April 1947 and reopened in May 1947. Data for all stations include monthly mean atmospheric essure, air temperature, vapor pressure, relative humidity, cloudiness, rainfall, weather and wind. *ubject Headings:* **1. Climate of Ellice Islands 2. Climate of Fanning Island 3. Climate of Ocean land 4. Climatic data 5. Ocean Island, Central Equatorial Pacific. I. Ellice Islands. Meteorogical Service II. Fanning Island. Meteorological Service III. Ocean Island. Meteorological rvice.**

4I–17 551.506.3:06(961)

*Wagner, Hermann, **Ergebnisse der Arbeiten des Samoa-Observatoriums. I. Das Samoabservatorium.** [Results of the work of the Samoa Observatory. Pt. I. Samoa Observatory.] K.) *Gesellschaft der Wissenschaften zu Göttingen, Math.-Phys. Klasse, Abhandlungen, Neue Folge*, 1), 1910. 70 p. 9 plates. Tetens, Otto and Linke, Franz, . . . **II. Die meteorologischen egistrierungen des Samoa-Observatoriums der Jahre 1902–1906.** [II. Meteorological records of e Samoa Observatory for 1902–1906.] *Ibid.*, No. 2. 137 p. 25 figs., 3 plates. Linke, Franz, . . **III. Die Brandungsbewegungen und ein Versuch ihrer Anwendung in der praktischen Meorologie.** [III. Surf action and an attempt to apply them in practical meteorology.] *Ibid.*, o. 3. 58 p. 3 plates. Tetens, Otto and Linke, Franz, . . . **IV. Das Klima von Samoa.** [IV. The mate of Samoa.] 114 p. 7 figs., 3 plates. **DLC**—Pt. I: history, building, development and ork of the Samoa Observatory, 1902–1906. Pt. II: discussion and data of observations of wind rection and force, rain, sunshine duration, temperature, humidity and air pressure. Pt. III: tempt to explain "earth tremors" or microseisms as phenomena associated with ocean waves. onthly observations from Apia tabulated and relationship between storms and microseisms dicated. Pt. IV: mean climatological data for rain, temperature, humidity and wind with some scussion. *Subject Headings:* **1. Climate of Samoan Islands 2. Microseisms 3. Samoan Islands, entral South Pacific. I. Tetens, Otto II. Linke, Franz.**

1912

4I–18 551.506.7(266)(261/4)

*Perlewitz, P., **Windbeobachtungen in den höheren Luftschichten des Atlantischen und südlichen Stillen Ozeans, nach Pilotballonaufstiegen von Dr. Harry Meyer, 1909 bis 1911.** [Observations of wind in the upper air layers above the Atlantic and South Pacific Ocean, based on pilot balloon ascents conducted by Dr. Harry Meyer, 1909 to 1911.] *Annalen der Hydrographie und Maritimen Meteorologie*, 40(9):454–477, Sept. **1912.** 6 tables, refs. **DWB**—Data and discussion of 57 pibal ascents (27 in North Atlantic, 12 in South Atlantic and 15 in eastern South Pacific), 1909–1911, from German training ships. Observations of wind variations with height up to 8.2 km in tropical Atlantic and Pacific found strikingly similar to upper wind data from Batavia. (*Same item as* 4E–5, May 1953, *MAB.*) *Subject Headings:* **1. Upper air winds 2. Atlantic Ocean 3. Southeast Pacific.**

1914

4I–19 551.582(79):551.588.1

McEwen, George Francis, **Peculiarities of the California climate explained on the basis of general principles of atmospheric and oceanic circulation.** *Monthly Weather Review*, 42:14–23, Jan. **1914.** 13 figs., table, 24 refs., eqs. **DWB**—"Attempt made to show effect of difference in temperature between land and water in modifying distribution of atmospheric pressure and winds and also account for low surface temperatures along west coasts of continents." *Subject Headings:* **1. Marine influences 2. Air-sea temperature variations 3. Climate of California 4. California.**

1918

4I–20 551.582.2(968.1)

*Brooks, C. E. P., **The meteorology of Ocean Island during the period 1905–16.** *Royal Meteorological Society, Quarterly Journal*, 44(185):51–53, Jan. **1918.** 4 tables. **DWB**—Data for Ocean Island (0°52′S, 169°36′E), 1905–1916 are summarized by months and also year by year, based on observations made at 9 A.M. and 9 P.M. local time. Diurnal variations of pressure tabulated, giving values for each 2 hours of the 24, for the two seasons Dec.–May and June-Nov. **1911.** A semidiurnal pressure wave is evident, which differs only slightly in time and amplitude from the rainy to the dry period of the year. Data on relative humidity, cloudiness and wind direction to 8 points are included. Most of the rain falls in the months Dec.–April, though the driest month, August has a 2.7 inch average and is extremely variable (0.6 to 8.5 in.). Annual totals range from 15 to 155 inches (1916 and 1914). *Subject Headings:* **1. Climate of Ocean Island 2. Ocean Island, Central Equatorial Pacific.**—*M.R.*

4I–21 551.526.6:551.582(85)

Coker, Robert E., **Ocean temperatures off the coast of Peru.** *Geographical Review*, 5(2):127–135, Feb. **1918.** fig., tables, refs. **DLC**—Discussion of effects of temperatures in the Humboldt current off Peru on the flora, fauna and climate of the region. El Niño current mentioned briefly. *Subject Headings:* **1. Sea temperatures 2. Marine influences 3. Climate of Peru 4. Southeast Pacific.**

4I–22 551.526.6:551.577.32(794)

Ritter, William E. and McEwen, George F., **Ocean temperatures and seasonal weather.** *Monthly Weather Review*, 46(11):512, Nov. **1918.** refs. **MH-BH**—High correlation between sea surface temperatures and seasonal precipitation amounts in southern California strongly indicated by limited but reliable data available. More extensive observations necessary to confirm this correlation. *Subject Headings:* **1. Marine influences 2. Sea surface temperatures 3. Precipitation amount 4. Northeast Pacific 5. Southern California.**

1919

4I–23 551.577.2(969)

Larrison, G. K., **Uncle Sam's dampest corner.** *Monthly Weather Review*, 47:303–305, May **1919.** 8 figs., table. **DWB**—Quotes heavy annual totals at high levels in Hawaii—Mount Waialeale (5080 ft.), 476 in./year, Puu Kukui (Maui, 5000 ft), 369 in. Refers to great contrasts in a short distance due to altitude or exposure. (*Same item as* 2K–41, Dec. 1951, *MAB.*) *Subject Headings:* **1. Mountain meteorology 2. Rainfall distribution 3. Hawaiian Islands.**

1920

4I–24 551.582(961.5)

*Brooks, C. E. P., **The climate of the Fiji-Islands.** *Royal Meteorological Society, Quarterly Journal*, 46(193):96–100, **1920.** fig., 2 tables. **DWB**—Brief descriptive account of weather and seasonal variations on the Fiji Islands precedes a map showing average distribution of pressure and

infall and prevailing winds at Suva (18°8′S, 178°26′E), the capital. Monthly meteorological ta for Suva, temperature and humidity at Levuka and Nasinu and rainfall at various stations bulated. *Subject Headings:* **1. Climate of Fiji Islands 2. Climatic data 3. Fiji Islands, Southwest cific.**

4I–25 551.582.3:551.515.23

Froc, Louis, **Atlas of the tracks of 620 typhoons, 1893–1918.** Zi-ka-wei Observatoire, Shanghai, nprimerie de l'Orphelinat de Tôu-sè-wè, **1920.** 4 p. 3 tables, 23 charts. **DLC**—Monthly and -monthly mean charts of tracks and frequency of typhoons during 26 yr period in Western Pacific d China Sea. Data for mean and extreme speed and points of track recurvature as well as monthly mmary maps of typhoon frequency and tracks included. *Subject Headings:* **1. Typhoon tracks Marine atlases 3. Northwest Pacific 4. China Sea.**

1921

4I–26 551.555.1(265/6)

Brooks, C. E. P. and Braby, H. W., **The clash of the trades in the Pacific.** *Royal Meteorological ciety, Quarterly Journal,* 47(197):4–13, Jan. **1921.** 8 figs., tables. Discussion, p. 12–14. **MH-H**—Data from several islands in the narrow strip of the equatorial Pacific (5°S–12°N, 150°W–0°E) where the trade winds meet are used to show distribution of pressure and wind, temperature d relative humidity and precipitation for various wind directions, and pressure distributions sociated with wet and dry periods. *Subject Headings:* **1. Winds at sea 2. Trade winds 3. Equa-rial Pacific.**

4I–27 551.555(969)

Daingerfield, Lawrence H., **Kona storms.** *Monthly Weather Review,* 49(6):327–329, June **1921.** tables, 2 plates. **DLC**—Five principles stated in support of theory that "Kona" or southerly nds over Hawaii are believed to be local phases of reversed or disturbed pressure distribution er the North Pacific. Review of the Dec. 22–28, 1920, kona storm given, supported by several aps. Kona storms 1914–1921 tabulated. *Subject Headings:* **1. Kona storms 2. North Pacific Hawaiian Islands.**—*From author's abstract.*

4I–28 551.509.33:551.577

Henry, A. J., **Seasonal forecasting of precipitation. Pacific Coast.** *Monthly Weather Review,* :213–219, April **1921.** 3 figs., tables. **DWB**—Examination of past data leads to the conclusion at pressure distribution over northeastern Pacific and Northwestern Canada is the most hopeful pproach. (*Same item as* 2B–25, Feb. 1951, *MAB.*) *Subject Headings:* **1. Long range forecasting Pressure anomalies 3. Pacific Coast, United States.**

1922

4I–29 551.5(26)(02)

*Hamburg. Deutsche Seewarte, **Dampferhandbuch für den Stillen Ozean.** [Steamship hand-ook for the Pacific Ocean.] Hamburg, Eckhardt & Messtorff, **1922.** 624 p. 18 figs., tables, fold. charts. **DLC**—A comprehensive coverage of information pertaining to navigation, wind d weather (p. 44), air pressure, storms (p. 35), cloudiness (p. 66), currents (p. 72), ice conditions . 114), tides, magnetic deviation and steamship routes on the Pacific Ocean. Tables and folding arts of air pressure, wind, currents, weather, water temperature and storm tracks included. *Sub-ct Headings:* **1. Marine meteorology 2. Handbooks 3. Pacific Ocean.**

4I–30 551.5:551.46(05)

*Kobe, Japan, Imperial Marine Observatory, **Memoirs,** 1(1), June **1922–.** figs., tables, refs., qs. **DLC**—Annual publication of detailed accounts of investigations and research undertaken in eteorological, oceanographical, magnetic and astronomical sections of the observatory. Out-anding contributors include T. Okada, K. Suda, K. Hidaka, and H. Arakawa. Good source of udies of the Japan region as well as of purely theoretical works in marine meteorology and ocean-graphy. Articles chiefly in English but some in German and French. *Subject Headings:* **1. Marine eteorological data 2. Periodicals 3. Pacific Ocean.**

4I–31 551.524.3(52):633.18

*Okada, T., **On the possibility of forecasting the summer temperature and approximate yield of ce crop for northern Japan (1st paper).** *Japan. Central Meteorological Observatory, Bulletin,* (1), **1919. DLC. 2nd paper.** *Kobe, Japan. Imperial Marine Observatory, Memoirs,* 1(1):18–26, ne **1922.** fig., 5 tables, 4 plates, refs., eqs. **DLC**—High correlation exists between winter tem-eratures at Nemuro (in turn related to the degree of coldness of the Oyasiwo current) and rice op of following summer in northern Japan. Cold winters generally followed by poor rice crops.

Subject Headings: **1. Crop yield forecasting 2. Oyashio Current 3. Cold currents 4. Northwes Pacific 5. Japan.**

4I–32 551.578.72(94)(961.5)(969

Visher, Stephen S., **Hail in the tropics.** *American Meteorological Society, Bulletin,* 3(7/8):117 118, July/Aug. **1922. DLC**—Cites records of hail storms in the tropics: northern territory of Aus tralia; Queensland, Australia; Fiji Islands; Hawaiian Islands. (*Same item as* D–145, May 1950 *MAB.*) *Subject Headings:* **1. Hail distribution 2. Australia 3. Fiji Islands 4. Hawaiian Islands**

4I–33 551.513(266.5

*Werenskiöld, W., **Mean monthly air transport over the North Pacific Ocean.** *Geofysiske Publikasjoner,* Oslo, 2(9), **1922.** 55 p. 40 figs., tables, refs., eqs. **DWB**—In an extensive, mathe matical treatment, author undertakes to "reduce mass of wind data available on pilot charts into charts which give direction and amount of average air transport for each month." Closing remark on wind and pressure and wind and precipitation included. *Subject Headings:* **1. Air mass transpor 2. Wind data 3. North Pacific.**

1923

4I–34 551.577(963

*Hellmann, G., **Regenfall auf den Marquesas-Inseln.** [Rainfall on the Marquesas Islands.] *Meteorologische Zeitschrift,* 40:145–146, **1923.** table. **DWB**—Brief article including broken records of rainfall at Taiohae (1897–1903, complete for 1898 and 1902) and at Oomoa (1899–1901, complete for 1900). *Subject Headings:* **1. Climate of Marquesas Islands 2. Rainfall data 3. Marquesas Islands, Central Equatorial Pacific.**

4I–35 551.515.2(265

Marvin, Charles F., **Why are typhoons in China Sea more frequent than West Indian hurricanes?** *Monthly Weather Review,* 51:407, **1923. DWB**—Brief remarks to effect that more prolonged occurrence in Pacific and China Sea of opposing wind systems flanking tropical calms accounts for greater frequency of tropical cyclones in those regions than in the Caribbean. *Subject Headings:* **1. Marine meteorology 2. Tropical cyclones 3. China Sea 4. Caribbean Sea.**

4I–36 551.515.2(265

*Selga, Miguel, **The birthplace of typhoons.** *Pacific Science Congress, 2nd, Melbourne and Sydney, 1923, Proceedings,* 1:672–680, **1923.** 2 tables, 2 refs. **DA**—Data given for origin (5° squares), date and duration of 330 typhoons in Pacific and China Sea 1903–1922. Plea made for wireless reports of typhoons from Jaluit to Manila and more numerous reports from Yap and Guam. *Subject Headings:* **1. Typhoon formation 2. West Pacific 3. China Sea.**

4I–37 551.515.2:551.58

*Selga, Miguel, **Tropical revolving storms within eight degrees of the equator.** *Pacific Science Congress, 2nd, Melbourne and Sydney, 1923, Proceedings,* 1:665–671, **1923.** 3 tables, refs. **DA**—Author cites all available statistics from 1686 to 1916 to prove typhoons do exist within 8° of equator. *Subject Headings:* **1. Typhoons 2. West Equatorial Pacific.**

4I–38 551.552(26

Somerville, Boyle T., **Ocean passages for the world. Winds and currents.** London, H.M. Stationery Office, **1923.** 585 p. tables, fold. maps. **DWB**—Includes sections on the winds currents and steamship routes of the Atlantic (p. 22–186), Indian (pp. 187–233) and Pacific (pp. 234–424) Oceans. Large folding map entitled "Atlantic, Indian and Pacific Oceans, diagram of oceanic winds" in cover pocket shows average wind direction for Jan.–March, April–June, July–Sept. and Oct.–Dec. for all the oceans. *Subject Headings:* **1. Marine meteorology 2. Atmospheri circulation 3. Winds at sea 4. Oceans.**

1924

4I–39 551.506.3:06(961

*Angenheister, G., **A summary of the meteorological observations of the Samoa Observator (1890–1920).** Wellington, New Zealand, W. A. G. Skinner, **1924.** 17 figs., tables, refs. **DLC**— Tables (p. 6–13) contain monthly means of temperature, pressure, humidity, wind velocity, sunshine cloudiness, and monthly number of thunderstorms, 1890–1920, at Apia. Seasonal, cyclical and lon range variation in meteorological elements noted. *Subject Headings:* **1. Meteorological data 2. Cli mate of Samoan Islands 3. Central South Pacific.**

4I–40 551.555(26)(265.5

South Pacific, winds on the tracks from Panama to Australian and New Zealand ports. *Marin Observer,* 1(1), Jan. **1924–.** charts. **DWB**—In many issues, charts are published showing win

oses for 5° squares based on data collected by ships regularly observing for British Meteorological Office. *Subject Headings:* **1. Winds at sea 2. Wind roses 3. South Pacific.**

1925

4I–41 551.515.23(265)

Chu, Coching, **The place of origin and recurvature of typhoons.** *Monthly Weather Review*, 53(1):1–5, Jan. **1925.** fig., 11 tables, refs., eqs. **MH-BH**—From data supplied by Weather Bureau tations at Guam and Yap, three tables were prepared showing average location of origin and recurvature of typhoons in different months; number of typhoons and depressions of each month originating in different latitudes; and average location of origin and recurvature for different types of typhoons. *Subject Headings:* **1. Marine meteorology 2. Typhoon tracks 3. Typhoon formation 4. Northwest Pacific.**

4I–42 551.542(265/6):551.588.1

Henry, Alfred J., **Pressure over the northeastern Pacific, and weather in the United States, December 1924, and January, 1925.** *Monthly Weather Review*, 53(1):5–10, Jan. **1925.** 2 figs., table, refs. **DWB**—Attempt to show relation between pressure distribution over the North Pacific Ocean, east of about 180°W and weather of the United States for corresponding periods. *Subject Headings:* **1. Marine influences 2. Pressure at sea 3. Northeast Pacific 4. United States.**—*From author's abstract.*

4I–43 551.506.3(266.5)

*Kobe, Japan. Imperial Marine Observatory, **The mean atmospheric pressure, cloudiness and sea surface temperatures of the North Pacific Ocean and the neighbouring seas for the lustrum 1916 to 1920; . . . 1921 to 1925; . . . 1926 to 1930** [and] **Supplement tables . . . for the epoch from 1911 to 1925.** Kobe, **1925; 1929; 1932.** 581 p.; 623 p.; 161 p.; 234 p. All tables. **DWB**—Five year means of atmospheric pressure, sea surface temperature and cloudiness for each one-degree square in South China Sea, Yellow Sea, Eastern Sea, Sea of Japan and waters along east coast of Japan and for each five-degree square in North Pacific based on data observed 6 times daily on Japanese merchant marine vessels. Supplement contains 15 year means (1911–1925) of the elements of the neighboring waters of Japan's south coast which were not published previously. *Subject Headings:* **1. Marine meteorological data 2. North Pacific 3. China Sea 4. Yellow Sea 5. Sea of Japan.**

4I–44 551.54:551.461.2(265)

Ogura, Sinkiti, **Effect of atmospheric pressure on sea level in the western part of the North Pacific Ocean.** *Japanese Journal of Astronomy and Geophysics*, Tokyo, 2:209–231, **1925.** 6 figs., tables, refs. **DGL, DGS**—Effect of atmospheric pressure on height of mean sea-level discussed for small and isolated islands (in Marianas, Carolines, Marshalls, Kuriles and southern and south-west islands of Japan) of North Pacific Ocean. *Subject Headings:* **1. Sea level variations 2. Pressure effects on sea level 3. Northwest Pacific.**

4I–45 551.582.2(96)

Ramsay, W. G., **Meteorological conditions on Baker and Howland Islands.** *Monthly Weather Review*, 53(1):23–24, Jan. **1925.** 2 tables. **DLC**—Winds were prevailing easterly with great constancy at the surface and aloft, although at the cirrus level winds were SE, S or SW. Observations made by author (member U. S. Weather Bureau staff, Honolulu) on a natural history expedition to Baker and Howland Islands, 178°W near Equator, Sept. 15–Oct. 7, 1924. Excerpts from the report to the Bishop Museum, Honolulu, tell of general conditions, cloudiness, humidity (lower than expected), rainfall (estimated 3 in./yr) and upper winds as deduced from 14 pilot balloon observations, none reaching higher than 2300 m. *Subject Headings:* **1. Climate of Howland Island 2. Expeditionary climatic data 3. Pilot balloon data 4. Central Equatorial Pacific.**—*M.R.*

4I–46 551.515.2:57

Visher, Stephen S., **Tropical cyclones and the dispersal of life from island to island in the Pacific.** *American Naturalist*, 59:70–78, **1925.** refs. **DLC**—Various continent-changing and wind-drift theories of dispersal of life in Pacific discussed. Carrying of insects by wind particularly emphasized. Geologic changes in conditions considered. (*Same item as* B–83, Feb. 1950, *MAB.*) *Subject Headings:* **1. Insects 2. Cyclones 3. Pacific Islands.**

4I–47 551.515.2(265/6)

*†Visher, Stephen S., **Tropical cyclones of the Pacific.** *Bernice P. Bishop Museum, Honolulu, Bulletin*, No. 20, **1925.** 163 p. 20 figs., 28 tables, bibliog. p. 157–163. **DLC**—A comprehensive work on the whole Pacific covering the mechanism of tropical cyclones; their distribution, tra-

jectories, physical dimensions, origin and energy; their prediction, effects on life and influence o weather; and some case studies. *Subject Headings:* **1. Tropical cyclones 2. Pacific Ocean.**

1926

4I–48 551.582.3(265

Japan. Hydrographic Department, **The current and meteorology charts of the seas nea Japan.** Tokyo, **1926.** 24 charts. In Japanese. Original unchecked. **DWB**—Includes air an sea temperatures, winds and fogs for China coast north of 20°N, East China, Yellow and Japan Sea and Pacific Ocean to 170°E. *Subject Headings:* **1. Ocean currents 2. Marine meteorological chart 3. Northwest Pacific 4. Sea of Japan 5. China Sea.**

4I–49 551.506(26

*Netherlands. (K.) Meteorologisch Instituut, **Monthly meteorological data for ten-degree squares in the Oceans.** Computed from International Logs and Observations. *Netherlands. (K. Meteorologisch Instituut,* No. 107b, **1926.** all tables. **DN-HO**—Wind, pressure, temperature cloudiness, and hydro-meteor data for 10° squares in North Pacific (10°–30°N, 140°–160°W) an South Pacific (10°–30°S, 90°–110°W). Similar data for Atlantic and Indian Oceans. *Subjec Headings:* **1. Monthly climatic data 2. Marine meteorological data 3. Pacific Ocean 4. Oceans**

4I–50 551.542(266.5

Reed, Thomas R., **Average pressures for oceanic areas computed from daily synoptic charts** *Monthly Weather Review,* 54(1):1–2, Jan. **1926.** 2 figs., ref. **MH-BH**—Possibilities and forecas values of "pressure summaries over oceanic areas from which reports are sporadic and badly dis tributed" stressed. *Subject Headings:* **1. Marine meteorology 2. Pressure at sea 3. North Pacific.**

1927

4I–51 551.506.7(967)(969

*Beals, E. A., **Free air winds over Honolulu and Guam.** *Monthly Weather Review,* 55(5):222–226 May **1927.** 6 tables. **DWB**—Annual and seasonal wind direction data for Pearl Harbor (21°22′N 157°58′W) at heights from 250 to 10,000 m, 1922–1924 tabulated and discussed. Less extensive mean monthly resultant wind directions at Guam (13°30′N, 144°56′E) for surface to 10,000 m 1921–1924 tabulated and compared with Pearl Harbor data. *Subject Headings:* **1. Wind data 2. Hawaiian Islands 3. Guam 4. North Pacific.**

4I–52 551.555.1(266.5

*Beals, E. A., **The northeast trade winds of the North Pacific.** *Monthly Weather Review,* 55(5) 211–221, May **1927.** 11 figs., 17 tables, refs. **DWB**—Gradual shift taking place in trade win direction from northeast towards east noticed and possible influence of high pressure areas nort and east of Honolulu and of changes in ocean temperature discussed. *Subject Headings:* **1. Trade winds 2. Central North Pacific 3. Honolulu, Hawaiian Islands.**

4I–53 551.577.2(265/6

*Knoch, K., **Grosse Anomalien des Niederschlags in der Äquatorregion des Pazifischen Ozeans** [Large precipitation anomalies in the equatorial region of the Pacific Ocean.] *Annalen der Hydro graphie und Maritimen Meteorologie,* 55(12):361–367, **1927.** 5 tables, refs. **DLC**—Monthly rainfal data from 1890 to 1919 are presented along with 10 year means, showing a tremendous increase i rainfall in the 30 year period (414 to 1065 mm from 1st to 3rd decade) largely due to very dry (13 mm in 1895) or very wet (2377 mm in 1914) years in the respective decades. In fact 1867 had 33 mm and 1868—345 mm whereas 1869 was very wet—Jan. alone having 323 mm (based on DIXON's record for Oct. 1866–March 1869, not tabulated). VOEĬKOV's explanation was based on variations in the boundary of the trades (near Malden), whereas KÖPPEN based his theory on changes in ocea currents and resulting water temperature. KNOCH uses wind direction frequencies from the Réseau Mondial to support his theory that a greater frequency of W or NW winds in 1914, 1915 and 191 accounts for heavy rains. *Subject Headings:* **1. Precipitation anomalies 2. Trade winds 3. Malde Island 4. Central Equatorial Pacific.**—*M.R.*

4I–54 551.582(96

*Reed, W. W., **Climatological data for the tropical islands of the Pacific Ocean (Oceania)** *Monthly Weather Review, Supplement,* No. 28, **1927.** 22 p. figs., 50 tables, refs. **DWB**—Genera remarks on temperature, relative humidity, cloudiness, precipitation and tropical storms preced tables of monthly mean climatological data for the Micronesian, Melanesian and Polynesia island groups (130°E–130°W; 30°N–25°S) and for selected stations. *Subject Headings:* **1. Climati data 2. Pacific islands 3. South Pacific 4. Equatorial Pacific.**

1928

4I–55 551.582.3(26)

Great Britain. Admiralty, **Meteorological charts for the world.** London, H.M. Stationery Office, Dec. 31, **1928.** Charts Nos. 2917–18; 2930–34. All charts. **DWB**—Quarterly charts of 50°S–70°N show mean directions and velocities of stream and drift currents as well as winds, isotherms and isobars for the Pacific, Atlantic and Indian Oceans. Charts were compiled from Great Britain Meteorological Office and Hydrographic Department and U. S. Hydrographic Office charts. *Subject Headings:* **1. World meteorological charts 2. Marine meteorological charts 3. Oceans.**

4I–56 551.542(7):551.463

*Stupart, Frederic, **Barometric pressure in northwestern America and temperature of the Pacific currents.** *Pacific Science Congress, 3rd, Tokyo, 1926, Proceedings,* 2:1388–1394, **1928.** 3 figs., 4 tables. **DA**—Report of incipient research in Canada aimed at determining the connection between North Pacific surface water temperature and atmospheric pressure in Yukon and Mackenzie River Basins. Sea surface temperature data and northwestern America pressure maps included. *Subject Headings:* **1. Marine influences 2. Sea surface temperatures 3. North Pacific 4. Northwest America.**

4I–57 551.506.7:551.557(969)

*Thomson, Andrew, **Upper-air currents at Honolulu, T. H.** *Monthly Weather Review,* 56(12):496–498, Dec. **1928.** 3 figs., 3 tables, 4 refs. **DWB**—Tabulation and discussion of 159 balloon flights, July 1924–July 1927, all extending above 5 km and one as high as 30 km at Pearl Harbor. Seasonal variation and direction variation with height indicated. *Subject Headings:* **1. Upper air winds 2. Honolulu, Hawaiian Islands.**

4I–58 551.506.7:551.557(961)

Thomson, Andrew, **Upper wind observations at Apia Observatory.** *Pacific Science Congress, 3rd, Tokyo, 1926, Proceedings,* 2:1395–1400, **1928.** 3 figs., table. **DA**—Generalizations on seasonal distribution of trades and antitrades based on pibal observations since 1923 at Apia (14°S, 172°W) up to height of 20 km. *Subject Headings:* **1. Trade winds 2. Upper air winds 3. Samoan Islands, Central South Pacific.**

4I–59 551.555.1(265/6)

The trade-winds. II. Atlantic, Pacific and Indian Ocean. *Marine Observer,* 5(53):93–100, May **1928.** 2 figs., 6 tables. **DWB**—Summary of available knowledge on strength, direction and variability of trade winds over the various oceans. *Subject Headings:* **1. Trade winds 2. Winds at sea. 3. Oceans.**

1929

4I–60 551.507.2(266.5)

Hutchison, W. J., **The growth of the vessel weather service of the Northeast Pacific Ocean.** *Monthly Weather Review,* 57(8):334–336, Aug. **1929. MH-BH**—Development of the vessel weather service from its modest beginnings in 1906, through growth of cooperation with Japan, to 1929 total of 240 vessels reporting weather by radio from the Pacific Ocean outlined. *Subject Headings:* **1. Marine meteorology 2. Ocean weather stations 3. Northeast Pacific.**

1930

4I–61 551.575

Byers, H. R., **Summer sea fogs of the California coast.** *California. University, Publications in Geography,* 3(5):291–338, **1930.** 13 figs., 11 tables, 34 refs. **DWB**—A study of the best data then available on California summer sea fog, the conditions on land and ocean favoring the formation of fog, fog distribution and temperatures aloft. (*Same item as* 3F–17, June 1952, *MAB.*) *Subject Headings:* **1. Sea fog 2. Marine influences 3. California Coast.**—*G. C. Bristow.*

4I–62 551.46(05)

California. University. Scripps Institution of Oceanography, **Bulletin (Non-technical Series).** No. 1–16, Dec. 30, **1916**–June 30, **1930.** figs., tables, refs., photos, charts. **DLC**—A non-technical series of monographs and articles concerned chiefly with describing the scope and nature of oceanography. Bulletin No. 12 contains several articles relating Pacific ocean conditions to climate in the western United States. Works by McEwen, Vaughan, Ritter, Beals and many others are included. *Subject Headings:* **1. Oceanography 2. Oceanographic institutes 3. Periodicals 4. Pacific Ocean.**

4I–63 551.524.3 551.543

Chevalier, Stanislas, **Study of the yearly variations of temperature and barometric pressure over the West Pacific.** *Pacific Science Congress, 4th, Java 1929, Proceedings*, 2A:427–447, **1930.** figs., tables. In French, English summary p. 427–428. **DA**—Paper consists of a study of: 1) a 4 yr periodicity during 53 years (1873–1926) of temperature and pressure observations at Zi-ka-wei Observatory, Shanghai, 2) a slow falling of pressure and rising of temperature from 1884 to 1923 at Zi-ka-wei, and 3) the effect of the sun's activity on the temperature and barometric pressure on the West Pacific. *Subject Headings:* **1. Marine climatology 2. Temperature at sea 3. Pressure at sea 4. West Pacific.**

4I–64 551.526.6 551.464

*Hamburg. Deutsche Seewarte, **Temperatur- und Salzgehaltbeobachtungen auf den Weltmeeren 1914–1929.** [Temperature and salt content observations on the oceans of the world 1914–1929.] *Aus dem Archiv der Deutschen Seewarte*, Hamburg, 49(2), **1930.** 33 p. All tables. **DLC**—Table 1, a guide to all temperature and salinity data published in *Annalen der Hydrographie* 1908–1914. Balance of tables consists of temperature and salinity data gathered by navy and merchant marine ships from 1914 to 1929 in Atlantic (p. 7–18), Indian (p. 19–23) and Pacific (p. 24–33) Oceans. *Subject Headings:* **1. Sea temperatures 2. Salinity 3. Oceans.**

4I–65 551.582(266.5)

*§Tsukuda, K., **On the mean atmospheric pressure, cloudiness and sea surface temperature of the north Pacific Ocean.** *Kobe, Japan, Imperial Marine Observatory, Memoirs*, 2(4):163–201, March **1930.** numerous tables, 39 charts appended. **DLC**—Brief discussion followed by numerous monthly mean charts and tables based on data collected four times daily and recorded in meteorological logs of Japanese steamships. *Subject Headings:* **1. Marine meteorological data 2. Pressure at sea 3. Cloudiness at sea 4. Sea surface temperatures 5. North Pacific.**

1931

4I–66 551.526.6

Gorton, A. F., **La Jolla ocean-temperatures during the upwelling period and their values as indices of atmospheric temperature and domestic gas-consumption during the winter season.** *American Meteorological Society, Bulletin*, 12(10):163–164, Oct. **1931.** **DLC**—Abstract and discussion of paper read at A.M.S. Meeting, Pasadena, 1931. High correlation found between ocean temperatures at La Jolla and gas consumption at San Diego and Los Angeles. Brief discussion of effect of ocean temperature on air temperature and precipitation. *Subject Headings:* **1. Marine influences 2. Sea surface temperatures 3. Industrial meteorology 4. Southern California 5. Northwest Pacific.**

4I–67 551.506.5

Hafstad, Katharine (Clarke), **Significance of air- and sea-temperatures obtained on cruise VII of the Carnegie.** *Monthly Weather Review*, 59(5):183–185, May **1931.** 8 figs., ref. **DWB**—Observational methods discussed and illustrated. More accurate air temperature data required to yield a truer picture of temperature influence of sea on atmosphere. *Subject Headings:* **1. Air-sea temperature variations 2. Energy exchange sea-atmosphere 3. Carnegie Expedition, 1928–1929 4. Pacific Ocean.**

4I–68 551.582(52)

Okada, Takematsu, **The climate of Japan.** *Japan. Central Meteorological Observatory, Tokyo, Bulletin*, 4(2), **1931.** 416 p. figs., 61 tables, 35 plates appended. Reprinted as: *U. S. Office of Naval Operations, NAVAER* 50-IR-60, Jan. **1944.** **DLC**—Comprehensive treatment of climate in Japan. Part I (climatography) arranged by region and part II (climatology) by meteorological element. Part III consists entirely of climatological tables of Japan. Extensive charts included. *Subject Headings:* **1. Climate of Japan 2. Climatic data 3. Japan.**

4I–69 551.553.6(26)

Selga, Miguel, **Windroses of ideal marine stations in and near the Philippines.** *Manila. Observatorio. Publications*, 3(2):35–57, **1931.** tables, graphs. **DWB**—Monthly and annual wind roses show proportion of winds from eight compass points, percentage of calms, and cloudiness (monthly only) for stations on Yap and Guam and various of the Philippine Islands over a period of 8–10 years. *Subject Headings:* **1. Wind roses 2. Yap 3. Guam 4. Philippine Islands 5. Northwest Pacific.**

1932

4I–70 551.509.2(266.5)

§Kobe, Japan. Imperial Marine Observatory, **Daily weather charts of the North Pacific Ocean.** April **1932.** 31 charts. **DN-HO**—Daily charts show pressure, temperature, wind and weather

onditions at 34 stations in the North Pacific region as well as general pressure distribution. Chart f cyclone tracks for the month indicating daily position of pressure centers appended. *Subject Headings:* **1. Daily weather maps 2. Cyclone tracks 3. North Pacific.**

4I–71 551.509.318(266.5)

Reed, Thomas R., **Weather types of the northeast Pacific Ocean as related to the weather of he North Pacific coast.** *Monthly Weather Review*, 60(12):246–252, Dec. **1932.** refs. **DWB**—uthor classifies Pacific weather maps according to direction of flow of the major air streams using bercromby's four basic types (southerly, northerly, easterly, westerly) plus the southwesterly most prevalent and persistent over Pacific) and northwesterly. Each type is described with mention f associated weather. *Subject Headings:* **1. Weather map classification 2. Marine influences . North Pacific.**

4I–72 551.506(265)

*Selga, Miguel, **Weather observations from ships.** Manila, Bureau of Printing, **1932.** 69 p. ll tables. Also: **Weather observations from ships in the Far East.** *Ibid.*, **1935.** 31 p. **DLC**—Data on pressure, temperature, wind direction and force, state of the sea, visibility, and actual veather reported by ships: 1) not close to land, 2) in meteorologically unknown regions and particularly 3) during the typhoon season. *Subject Headings:* **1. Marine meteorological data 2. West Pacific 3. Philippine Islands.**

4I–73 551.575(266.5)

*Tsukuda, K., **On the sea fog in the North Pacific Ocean.** *Geophysical Magazine*, Tokyo, 5:147–164, **1932.** tables, plate. **DWB**—Study made of 1911–1920 data to determine frequency of og in the North Pacific, its time of occurrence (daily and seasonal) and relation to wind direction, ir and sea surface temperatures and pressure distribution. Data plotted by five-degree squares. *Subject Headings:* **1. Sea fog frequencies 2. Marine meteorology 3. North Pacific.**

1933

4I–74 551.506.5:551.543.1

Hafstad, Katharine (Clarke), **Diurnal waves of atmospheric pressure computed from observaions made on cruise VII of the Carnegie.** *Beiträge zur Geophysik*, 39(4):337–355, **1933.** Abstract n: *Carnegie Institution of Washington, Year Book*, 32:249, **1932–1933.** 5 figs., 9 tables, refs. **DLC**—Corrected hourly values of atmospheric pressure averaged for certain zones of latitude and the mean hourly values treated by harmonic analysis to determine amplitude and phase of the 24-hourly, 8-hourly and 6-hourly oscillations. Harmonic coefficients represented graphically on the so-called "harmonic dial." Results of analysis compare favorably with those computed from observations of other expeditions. Amplitudes of 12-hourly and 6-hourly waves compared with empirical values obtained from SIMPTON's formulas and with data compiled and analyzed by PRAMANIK, respectively. *Subject Headings:* **1. Pressure waves 2. Diurnal pressure variations 3. Carnegie Expedition, 1928–1929 4. Pacific Ocean.**—*From author's abstract.*

4I–75 551.582(963)

*Leighly, John Barger, **Marquesan meteorology. Notes on the meteorologic observations made n the Marquesas islands by the Pacific entomological survey during the years 1929–1932.** *California. University. Publications in Geography*, 6(4):147–172, **1933.** 5 figs., tables, refs. **DLC**—Local climatological contrasts within island group, daily and annual cycles, long duration variations and their dynamics and problem of seasonal forecasting of rain discussed. Data for mean monthly temperature, relative humidity, cloudiness, wind force and direction, rainfall and number of rainy days recorded on six islands of Marquesas group between 1929 and 1932 at altitudes from sea level to 2000 ft tabulated. *Subject Headings:* **1. Climate of Marquesas Islands 2. Climatic data 3. Marquesas Islands, Central Equatorial Pacific.**

4I–76 551.576.2(265/6)

*Schott, Gerhard, **Die Bewölkung über dem Indischen und Stillen Ozean.** [Cloudiness over the Indian and Pacific Oceans.] *Annalen der Hydrographie und Maritimen Meteorologie*, 61:280–290, **1933.** 2 figs., tables, refs., 2 fold. plates. **DLC**—Data chiefly from research cruises by author and from network of observations by Netherlands Meteorological Institute are plotted on two large colored charts showing cloudiness in Jan.–Feb.–March and in July–Aug.–Sept. for Pacific and Indian oceans. Attention called to irregularities of distribution such as the very cloudy area in the eastern part of the Indian Ocean SE trades and the almost cloudless zone in the central equatorial Pacific. *Subject Headings:* **1. Marine meteorology 2. Cloudiness at sea 3. Pacific Ocean 4. Indian Ocean.**

4I–77 551.577.2(265/6)

*Schott, Gerhard, **Die jährlichen Niederschlagsmengen auf dem Indischen und Stillen Ozean.** [The annual amounts of precipitation on the Indian and Pacific Oceans.] *Annalen der Hydrographie und Maritimen Meteorologie*, 61(1/2):1–12, **1933.** 2 figs., 4 tables, 19 refs. For shorter English version, *see Pacific Science Congress, Fifth, Canada, 1933, Proceedings*, 3:1987–1990, **1934.** **DLC**—First fairly comprehensive coverage of Indian and Pacific Ocean precipitation based on works of Hann-Süring, von Ekhart and Köppen and making use of all additional island and ship data. Monthly and annual rainfall for island stations in the Indian Ocean and the north equatorial and south Pacific given. *Subject Headings:* **1. Rainfall at sea 2. Rainfall data 3. Marine meteorology 4. Pacific Ocean 5. Indian Ocean.**

1934

4I–78 551.542(266.5):551.524.2(7)

Blair, Thomas Arthur, **Seasonal pressures over the Pacific Ocean and Alaska in relation to subsequent winter temperatures in interior North America.** *Pacific Science Congress, 5th, Victoria and Vancouver, British Columbia, Canada, 1933, Proceedings*, 3:1949–1964, **1934.** 11 figs., 4 refs. **DA**—Figs. 1 and 2 showing the average pressure departures preceding 13 warm and 14 cold winters, respectively, in North America indicate a belt of low pressure across the Pacific preceding warm winters and of high pressure preceding cold. Maps of average pressure departures in consecutive three month periods (1912–13) discussed and their relation to average seasonal temperatures over large areas pointed out. *(See also: Monthly Weather Review*, 58:53–58, 1930 and 59:175–189, 1931.) *Subject Headings:* **1. Atmospheric pressure 2. North Pacific 3. North America.**

4I–79 551.515.8(266.5)

§Byers, Horace Robert, **The air masses of the North Pacific.** *California. University. Scripps Institution of Oceanography, Bulletin, Technical Series*, 3(14):311–354, Nov. 14, **1934.** 30 figs., refs. **DLC**—A well-illustrated discussion of sources, trajectories and interactions of air masses of the North Pacific (Polar continental and Tropical maritime initially), and the formation, movement and degeneration of the frontal systems. Study based on approximately 600 surface charts from Japanese Imperial Marine Observatory and U. S. Weather Bureau and on about 300 Navy free air soundings at Seattle, San Diego, Honolulu, and Los Angeles. Author systematizes the modifications undergone by Pc and Pm air along North American coast. *Subject Headings:* **1. Air mass analysis 2. Air mass modification 3. North Pacific.**

4I–80 551.526.6:551.577.3(794)

Gorton, A. F., **Pacific Ocean indicators of California's seasonal precipitation.** *Pacific Science Congress, 5th, Victoria and Vancouver, British Columbia, 1933, Proceedings*, 3:1767–1773, **1934.** 4 tables, 17 refs. **DA**—Review of previous attempts to correlate Pacific Ocean temperature and California precipitation and report of a systematic study of correlation of seasonal precipitation and run-off with monthly and quarterly water temperatures observed at La Jolla, California. *Subject Headings:* **1. Marine influences 2. Rainfall amount 3. Climate of California 4. California.**

4I–81 551.506.5(26)

Hafstad, Katharine (Clarke), **Meteorological results during cruise VII of the Carnegie, 1928–1929.** *Pacific Science Congress, 5th, Victoria and Vancouver, British Columbia, 1933, Proceedings*, 3:1969–1976, **1934.** 4 figs., table, 9 refs. **DA**—Brief summary of meteorological data shows spread between sea and air temperatures rarely exceeds 2°C (sea usually warmer), that amplitude of the 12 hourly pressure wave is several hundredths of a millimeter smaller over the sea than over the land, and that satisfactory evaporation measurements can be made on sailing vessels. *(See* 4I–144, below, for complete data and analysis.) *Subject Headings:* **1. Marine meteorology 2. Carnegie Expedition, 1928–1929 3. Pacific Ocean 4. Atlantic Ocean.**

4I–82 551.542(51)(265)

Hale, P. G., **Pressure distribution at 3000 meters over the coast of China and adjacent seas.** *Pacific Science Congress, 5th, Victoria and Vancouver, British Columbia, 1933, Proceedings*, 1:671–673, **1934.** refs. **DA**—Brief remarks on seasonal isobaric patterns and their relation to precipitation and typhoon movement. *Subject Headings:* **1. Pressure distribution 2. China 3. China Sea.**

4I–83 551.506.1(265)

*Indochina. Service Météorologique, **Observations météorologiques faites par les navires en mer, année 1933.** [Meteorological observations made by the ships at sea, 1933.] Phu-Liên (Tonkin), **1934.** 69 p. tables. **DWB**—Meteorological observations made by ships in the China Sea in 1933 are tabulated at length. *Subject Headings:* **1. Marine meteorological data 2. China Sea.**

4I–84 551.526.6(265/6):551.506(71)

*Patterson, J., **Water temperatures on the Pacific and their effect on the weather of Canada.** *Pacific Science Congress, 5th, Victoria and Vancouver, British Columbia, 1933, Proceedings,* 3:1775–1783, **1934.** 7 figs., 4 tables. **DA**—Ocean temperatures (1923-1933) recorded on ships sailing routes between Vancouver, Honolulu, Yokohama, New Zealand and Australia are tabulated (for every 5° square) and plotted diagrammatically. No convincing correlation with Canadian temperature departures yet found. *Subject Headings:* **1. Sea surface temperatures 2. Marine influences 3. Pacific Ocean 4. Canada.**

4I–85 551.513(265/6):551.555.1

Thomson, Andrew, **Intertropical circulation over the Pacific Ocean.** *Pacific Science Congress, 5th, Victoria and Vancouver, British Columbia, 1933, Proceedings,* 1:675–680, **1934.** 3 figs., 5 tables, refs. **DA**—Brief discussion, diagrams and some data on surface extent of trade winds, thickness and annual variation in thickness of trade wind stratum, vertical velocity profile of trades, mixing layer of easterly winds above trades, antitrades, upper east wind and pressure distribution over the Pacific. *Subject Headings:* **1. Trade winds 2. Atmospheric circulation 3. Pacific Ocean.**

4I–86 551.594.11(961)

Wadsworth, J., **Atmospheric electricity in Samoa.** *Pacific Science Congress, 5th, Victoria and Vancouver, British Columbia, 1933, Proceedings,* 3:1691–1696, **1934.** 4 figs., 2 tables, 10 refs. **DA**—Mean hourly and monthly values of potential gradient in volts per meter for land and lagoon stations at Apia Observatory, 1924–1930, tabulated and discussed. *Subject Headings:* **1. Atmospheric potential gradient 2. Samoan Islands, Central South Pacific.**

4I–87 551.543(266.5)

Walker, Gilbert T., **Seasonal fluctuations in the North Pacific Ocean.** *Pacific Science Congress, 5th, Victoria and Vancouver, British Columbia, 1933, Proceedings,* 3:1945–1947, **1934.** 3 charts, table. **DA**—A series of numbers is worked out to represent extent of barometric fluctuations in North Pacific, 1882–1930. Charts relate these numbers to pressure, temperature and rainfall of the Pacific during the winter season. *Subject Headings:* **1. Pressure variations 2. Pressure at sea 3. North Pacific.**

1935

4I–88 551.513

*Deppermann, Charles E. (*Ass. Dir., Weather Bureau, Manila*), **The mean transport of air in the Indian and South Pacific Ocean.** Manila, Bureau of Printing, **1935.** 6 p. 2 tables, 36 plates. **DWB**—Study based on the Pilot Charts of the U. S. Hydrographic Office. Tables give for each 5° square the average resultant surface wind velocities for the N and E axis in m sec^{-1}. Monthly values cover the Indian Ocean (10°–160°E, 50°S–30°N) and three-monthly values the South Pacific (120°E–70°W, 50°S–10°N, partly up to 60°S). The wind vectors are shown on maps, as well as convergence and divergence zones with their relative intensities, the position of fronts and the origin points of observed typhoons. Two charts present the annual means and other charts the vector differences for Feb. and May (Indian Ocean only). *Subject Headings:* **1. Air mass transport 2. Wind distribution 3. Typhoons 4. Indian Ocean 5. South Pacific.**—*A.A.*

4I–89 551.506:656.6

*Great Britain, Hydrographic Office, **West coasts of Central America and United States pilot. From Punta Mariato to Cape Flattery.** 5th ed. London, H. M. Stationery Office, **1935.** 448 p. illus., tables, plates, maps. **DLC**—Pages 11–17 contain general remarks on climate, pressure and winds (particularly coastal) and fogs of Central American, Mexican and United States west coasts. Climatic tables in appendix. *Subject Headings:* **1. Coastal pilots 2. North America.**

4I–90 551.582.3(265)

Japan. Hydrographic Dept., **Aeronautical weather charts. Japanese waters.** May **1935.** all charts. **DN-HO**—Wind roses and charts using data up to 3000 m at 78 stations in SW Korea, Formosa, the Marianas, Marshalls and Carolines, Pohai Bay, China Sea, Japan Sea and Sea of Okhotsk to tip of Kamchatka. *Subject Headings:* **1. Aeroclimatic charts 2. Aeronautical meteorology 3. Northwest Pacific.**

4I–91 551.465

McEwen, George F., **Destructive high waves along the southern California coast.** *Shore and Beach,* New Orleans, 3(2):61–64, April **1935.** eqs. **DLC**—It is thought that severe atmospheric disturbances in immense areas of the Pacific from which no reports are available might have caused large swell reported on shore and at sea in 1934. *Subject Headings:* **1. Storms at sea 2. Swell 3. Pacific Ocean 4. Southern California Coast.**

4I–92 551.582.3(265)

Netherlands. (K.) Meteorologisch Instituut, **Oceanographische en meteorologische waarnemingen in de Chineesche Zeeën en in het westelijk Deel van den Noord Stillen Oceaan. I. Maandkaarten voor Januari–Juni (1910–1930). II. Maandkaarten voor Juli–December. Oceanographic and meteorological observations in the China Seas and in the western part of the North Pacific Ocean. I. Monthly charts for January–June (1910–1930). II. Monthly charts for July–December (1910–1930.)** *Netherlands. (K.) Meteorologisch Instituut*, No. 115, **1935.** 46 p. In Dutch and English. All charts. **DWB**—Surface current, fog, wind, precipitation, pressure, air temperature, sea surface temperature, gale, typhoon and depression charts for the NW Pacific based on many years of Netherlands ship data as well as on data from the British Meteorological Office, U. S. Hydrographic Office, Deutsche Seewarte in Hamburg, Office National Météorologique in Paris and Central Observatory in Manila. *Subject Headings:* **1. Marine climatic charts 2. Typhoons 3. Northwest Pacific.**

4I–93 551.5(26)(02)

†*§Schott, Gerhard, **Geographie des Indischen und Stillen Ozeans.** [Geography of the Indian and Pacific Oceans.] Hamburg, C. Boysen, **1935.** 413 p. 114 figs., fold. map, 37 tables, refs. **DWB**—A classic, comprehensive coverage of all phases of the geography of the area. Of special interest to meteorologists is chapter 6 on the chief meteorological and oceanographical characteristics of the surface waters of the two oceans. A series of detailed, colored charts fully illustrate the text. Unannotated (30–60 items) bibliographies chiefly in German and English included p. 171. The chief meteorological and oceanographical qualities of the surface of the Indian and Pacific Oceans; p. 256, The natural regions of the Indian Ocean; p. 326, The natural regions of the Pacific Ocean. *Subject Headings:* **1. Oceanography 2. Marine meteorology 3. Textbooks 4. Bibliographies 5. Pacific Ocean 6. Indian Ocean.**

1936

4I–94 551.515.2(265)

Gherzi, Ernesto, **Typhoons in 1926 . . . 1934.** Zi-ka-wei Observatoire, Shanghai, T'óu-sè-wè Orphanage Printing Press [1928?]–**1936.** maps. 1931–1934 available in **DLC**—A series of yearly studies of typhoons with maps showing storm tracks. Introductory remarks on some phase of typhoon study included in some issues (e.g., 1927, Where do typhoons develop?; 1930, Distribution of clouds in a typhoon; 1931, Some data about typhoon centres; and 1933, Typhoons and "fronts"). *Subject Headings:* **1. Typhoons 2. West Pacific.**

4I–95 551.465(266)

Gunther, E. R., **Variations in behaviour of the Peru coastal current—with an historical introduction.** *Geographical Journal*, 88(1):37–65, July **1936.** 6 figs., refs. Discussion p. 61–65. **DLC**—After a fairly extensive review of the history of the discovery and investigation of the Humboldt or as is now preferred, the Peru current, the recorded variations in temperature, drift, etc. are given in text and cross sections as well as isothermal charts of the horizontal variations. Anticyclonic swirls and cyclonic counter currents are characteristic of this area. The oceanic drift portion of the current (the Peru Oceanic Current) must be distinguished from the region of upwelling, or the Peru Coastal Current. The area where the surface isotherms run N and S instead of E and W marks the boundary between the two portions of the Peru Current. *Subject Headings:* **1. Peru Current 2. Southeast Pacific.**—*M.R.*

4I–96 551.515.8:551.511

Richardson, Robert W., **Winter air-mass convergence over the North Pacific.** *Monthly Weather Review*, 64(6):199–203, **1936.** 5 figs., 10 refs. **MH-BH**—Question of mean position of the polar front over the North Pacific discussed and illustrated with mean pressure charts. Relationships between cyclone frequencies for various months, convergence of Pc and Pm air masses, and alignment of the polar front considered. *Subject Headings:* **1. Convergence 2. Polar front 3. North Pacific.**

4I–97 551.515.23(265/6)

Rodewald, M., **Eine sekundäre subtropische Zyklonen Bildungsstätte im mittleren Nordpazifischen Ozean.** [A secondary subtropical cyclone place of origin in the middle Pacific Ocean.] *Annalen der Hydrographie und Maritimen Meteorologie*, 64:433–436, **1936.** refs. **DWB**—Discussion of areas of tropical cyclone origin in relation to regional atmospheric pressure patterns. *Subject Headings:* **1. Tropical cyclones 2. Central Pacific.**

4I–98 551.577.2(96)

†*Tüllman, Hubert, **Die Niederschlagsverhältnisse der Südsee-Inseln.** [Precipitation conditions in the South Sea Islands.] *Aus dem Archiv der Deutschen Seewarte*, Hamburg, 56(5), **1936.** 71 p.

3 figs., 7 tables, 10 charts, bibliog. p. 52–53. **DLC**—A scholarly and analytical treatment of rainfall data from 503 stations in the various island groups south of (and including) Hawaii, with careful annotations as to sources and treatment of data and beautiful charts of rainfall areas of individual islands or groups. The major sections discuss various aspects of the (a) spatial and (b) temporal distribution of precipitation in the several areas under consideration. *Subject Headings:* **1. Precipitation variations 2. Precipitation distribution 3. Pacific islands 4. Central Pacific.**

1937

4I–99 551.5(26)(05)

California. University. Scripps Institution of Oceanography, **Contributions, New Series.** No. 1–, **1937–. DA**—Annual series of bound reprints of all contributions other than those papers published in the *Bulletin* of the Scripps Institution of Oceanography. Subject matter embraces all fields of oceanography with emphasis on marine biology. The long list of distinguished contributors includes H. U. SVERDRUP, G. F. MCEWEN, R. H. FLEMING, C. E. ZOBELL and W. C. JACOBS. *Subject Headings:* **1. Oceanography 2. Oceanographic institutes 3. Periodicals.**

4I–100 551.515.83(266.5)

Harney, Pat J., **Note on H. C. Huang's investigations of frontogenesis in the North Pacific.** *Monthly Weather Review*, 65(9):335–337, Sept. **1937.** 2 figs., refs. **DWB**—Reference made to HUANG's research because of its value as a check on the theoretical methods advanced by PETTERSSEN. Two winter charts from HUANG's paper "Frontogenesis in the Far East" (*see* 4I–155 below) are reproduced to show that PETTERSSEN's theory accounts for the empirical case in the North Pacific when "actual frontal activity or the resultant cyclone tracks do not coincide with the deformation axis of the field of motion." *Subject Headings:* **1. Frontogenesis. 2. North Pacific.**

4I–101 551.582(966)

Hosokawa, T., **Climate and topography of Truk Island of the Caroline Islands Group.** *Biogeographical Society of Japan, Tokyo, Bulletin*, 7(11):171–255, **1937.** 51 figs., refs., tables. In Japanese, English summary p. 249–252. **DLC**—Illustrated account of flora of the Truk Islands 151°43′E–152°03′E; 7°25′N–8°68′N) with brief description (p. 175–177) of climatic conditions. *Subject Headings:* **1. Climate of Caroline Islands 2. Caroline Islands, Northwest Pacific.**

4I–102 551.552(266.5)

Hurd, Willis Edwin, **Average conditions of wind and weather, North Pacific Ocean. Compiled for the information of ocean travelers from data in the Marine Division of the Weather Bureau.** Washington, D. C., U. S. Weather Bureau, **1937.** 12 p. fig. **DWB**—General comments on the air temperatures, atmospheric humidity, cyclones, storms, extratropical cyclones, typhoons, trade winds and monsoons on the North Pacific precede brief descriptions of average weather conditions, by months. *Subject Headings:* **1. Weather at sea 2. North Pacific.**

4I–103 551.515(265)

Japan. Hydrographic Dept. **On the cyclones encountered on the western part of the North Pacific Ocean.** *Japan. Hygrographic Dept., Hydrographic Bulletin (Suiro Yoho)*, 16(2):47–52, Feb. **1937.** figs. In Japanese. **DN-HO**—*Subject Headings:* **1. Storms at sea 2. Cyclones 3. Northwest Pacific.**

4I–104 551.509.33(794)

McEwen, George F., **Seasonal forecasts of California weather.** *California Monthly*, p. 18–19, 40–42, Nov. **1937.** illus.—Forecasts based on the inverse relationship between summer sea surface temperatures and precipitation amounts during the following winter in California and weighted by the year's position in the five or 25 yr. rainfall cycle prove fairly reliable. Further research necessary. For earlier studies of the same subject by McEwen, *see items* 2B–39, –127, and –137, Feb. 1951, *MAB* and *Monthly Weather Review*, 53(11):483–489, Nov. 1925; *Professional Engineer*, 14(5):8–11, May 1929; *California Citrograph*, 16, 1930. *Subject Headings:* **1. Marine influences 2. Long range forecasting 3. Sea surface temperatures 4. Precipitation amount 5. California.**

4I–105 551.526.6(265)

*Tsukuda, K., **On the surface temperature of the neighbouring seas of Japan.** *Kobe, Japan. Imperial Marine Observatory, Memoirs*, 6(3):239–258, Jan. **1937.** 5 figs., 2 tables, 13 plates. **DWB**—Monthly, seasonal and annual sea surface temperatures (1911–1920) for China Sea, Yellow Sea, Gulf of Liao-tung, Sea of Japan and western Pacific Ocean studied and tabulated. Annual change of sea surface and air temperatures compared graphically. Influence of cold and warm current systems, winds and topographic effects considered. *Subject Headings:* **1. Sea surface temperatures 2. China Sea 3. Sea of Japan 4. Gulf of Liao-tung 5. Northwest Pacific.**

4I–106 551.463(266)

Tully, John P., **Why is the water along the west coast of Vancouver Island so cold?** *Canada, Fisheries Research Board, Progress reports of the Pacific Biological Station, Nanaimo, B. C., and Pacific Fisheries Experimental Station, Prince Rupert, B. C.*, No. 34:13–15, **1937.** fig. **DLC**—Brief account of upwelling off Vancouver Island. *Subject Headings:* **1. Upwelling 2. Vancouver Island, Northeast Pacific.**

1938

4I–107 551.515.2(265)

Deppermann, Charles E., **Typhoons originating in the China Sea.** Manila, Philippines, Weather Bureau, Bureau of Printing, **1938.** 51 p. 37 figs., 2 tables, 24 refs. Also: **Typhoons and depressions originating to the near east of the Philippines. 1939.** 44 p. 23 figs., table, refs. **DLC**—Attempt made to determine air mass, stability, wind; frontal, convergence and temperature conditions conducive to typhoon origin. Detailed case histories (with maps) of three typhoons included as well as briefer discussion of four other typhoons and a general historical table of China Sea typhoons giving place of origin and air masses involved. Second paper is a similar investigation of typhoons and depressions originating in the region bounded on the north by about latitude 20°N, on the south and east by the Marianas, Carolines and Bouins and on the west by the Philippines. *Subject Headings:* **1. Typhoons 2. Typhoon formation 3. China Sea 4. Northwest Pacific.**

4I–108 551.506.7(96)

Giovannelli, J. L., **Quatre années de sondage aérologiques en Océanie.** [Four years of aerological soundings in Oceania.] *Annales de Physique du Globe de la France d'Oûtre-Mer*, 5(28):102–105, Aug. **1938.** ref. **DLC**—Statistical summary by months of the information supplied by 840 aerologic soundings effected in French Oceania during the period 1934–1937. Vertical stratification above Tahiti appears as follows: disturbed zone (to 1500 m), trade wind (to 3000 m) transition zone and antitrade wind. For further treatment of same subject *see* author's "Atmospheric currents in French Oceania" (*Pacific Science Congress, 6th, Berkeley, 1939, Proceedings*, 3:697–705, 1940). *Subject Headings:* **1. Upper air winds 2. Tahiti, Central South Pacific.**

4I–109 551.582(96)

†*Schott, Gerhard, **Klimakunde der Südsee-Inseln.** [Climatology of the South Sea islands.] (In: Köppen, W. and Geiger, R., **Handbuch der Klimatologie.** [Handbook of climatology.] v. IV, Part T, Berlin, **1938.** 114 p. 17 figs., 11 tables, 38 refs.) **DLC**—General remarks on the regional characteristics of air temperature and pressure, wind regime, tropical cyclones and precipitation are followed by discussion of climate by zones; 1) NE trades, 2) Equatorial moist zone, 3) Equatorial dry zone, 4) SE trades, 5) transition area between SE trades and westerlies. Numerous tables and charts. *Subject Headings:* **1. Marine climatology 2. Climate of Pacific Islands 3. Pacific Area.**

4I–110 551.582.3

*U. S. Weather Bureau, **Atlas of climatic charts of the oceans.** *U. S. Weather Bureau, W.B.*, No. 1247, **1938.** vi p. 130 charts on 65 p. **DLC**—Charts based on about 5½ million observations taken on ships in all oceans during more than 50 years. No data from islands or continents used. Charts include frequency analysis of data on winds, visibility, cloud type and degree, rainfall and thunderstorms and sea-air temperatures. *Subject Headings:* **1. Marine climatology 2. Marine atlases 3. Pacific Ocean.**

1939

4I–111 551.509.52:629.13

Day, John A., **Aviation wind forecasts over the Pacific.** *American Meteorological Society, Bulletin*, 20(8):340–345, Oct. **1939.** 7 figs. **DWB**—A method of computing and of forecasting the winds at 7000 and 10,000 ft elevation from San Francisco to Honolulu is outlined. The forecasting of two components—the gradient wind which can be obtained from isobars and the thermal component which is a function of the gradient of the mean vertical temperature of the layer below that in question—is based on the Vernon-Ashburn method. In case Apob or Raob soundings are not available, the thermal component can be computed from pilot balloon or other wind observations by a method which is described. *Subject Headings:* **1. Aeronautical meteorology 2. Upper air wind forecasting 3. San Francisco-Honolulu air route 4. North Pacific.**—*M.R.*

4I–112 551.461.2

Jacobs, Woodrow C., **Sea level departures on the California coast as related to the dynamics of the atmosphere over the North Pacific Ocean.** *Journal of Marine Research*, 2(3):181–194, **1939.** 6 figs., table, ref. **DWB**—Relationship between atmospheric pressure and sea level (most pronounced during spring and summer) explained by variation in total mass of water carried away from coast as a result of winds whose component, parallel to the coast, varies. Hydrostatic effect of pressure difference not considered an acceptable explanation. It is thought that observed "agreement

etween surface density, rainfall, and sea level might also be explained by the regional dynamic ystem." *Subject Headings:* **1. Pressure effects on sea level 2. Sea level variations 3. Dynamics f the atmosphere 4. Northeast Pacific 5. California Coast.**

4I–113 551.582(969)

Jones, Stephen B., **The weather element in Hawaiian climate.** *Association of American eographers, Annals* 29:29–57, **1939.** 26 figs., refs. **DLC**—An essentially descriptive account f the main features of Hawaiian weather including discussion (with illustrative aerograms, graphs nd charts) of the usual trade wind conditions, the changeable weather associated with extratropical yclonic fronts, "kona" weather with high humidity and light southerly winds, possible effects of the quatorial front on Hawaiian weather, infrequent thunderstorms, and effect of the climate on human omfort. Attention called to the importance of Pacific climatology. *Subject Headings:* **1. Climate f Hawaiian Islands 2. Hawaiian Islands, Central North Pacific.**

4I–114 551.506.7(266.5)

Lockhart, W. M., **Some upper-air observations made in the Pacific.** *American Geophysical nion, Transactions,* Part III:348–352, **1939.** 4 figs. **DWB**—Analysis of weather conditions nd aerological soundings made with carrier-based planes operating in the Pacific near Panama. he individual soundings in each series are plotted as cross sections. Though obviously not syn- ptic, they do give an idea of the structure of the inter-trade region where tropical cyclones fre- uently originate. It is thought that the SW trades are the source of the cool moist air and the E trades of the warm dry air in a typhoon. This seems to be borne out by the soundings. The erometerograph soundings are for May 17–19, 1936; May 27–June 5, 1936 and June 1–9, 1935 San Diego to Hawaii). Radiosonde ascents to 19 km, Jan. 4–11, 1939 (from San Diego to Panama) now a tropopause rising from 15.3 to 17.9 km and then falling off slightly (to 17.8) near Panama. *ubject Headings:* **1. Aerometeorograph soundings 2. Tropopause height 3. Radiosonde obser- ations 4. Northeast Pacific.**—*M.R.*

4I–115 551.515.2(266.5)

*Netherlands. (K.) Meteorologisch Instituut, **Statistieken omtrent typhonen uit ongeveer 300 Nederlandsche scheepswaarnemingen (1910–1935).** [Statistics relating to typhoons from bout 3300 Netherlands ships' observations (1910–1935).] *Netherlands. (K.) Meteorologisch nstituut,* No. 119, **1939.** v. I, text. 100 p. v. II, illustrations. 54 p. **DLC**—General informa- on about observations, methods of working up observations using punched card system. Pressure elow normal, wind direction, force, swell, clouds, rain, air temperature, lightning, miscellaneous henomena in typhoons, current, general air circulation in vicinity of typhoon, summary relating o navigation. Appendix 1—pressure in the China seas; 2—data on air temperature in the China eas, detailed charts in black and white and in color, relative to all associated phenomena. An xcellently compiled, written, edited and printed work on a subject which, though covered by revious works in several languages, had not been attempted for 35 years in a thorough statistical anner. Regions represented include China Sea and Pacific between Philippines and Japan to titude 145°E. *Subject Headings:* **1. Typhoon statistics 2. China Sea 3. Northwest Pacific.**— *M.R.*

4I–116 551.525(962)

Ravet, J., **La température du sol à Tahiti.** [Soil temperature on Tahiti.] *Annales de Physique u Globe de la France d'Outre-Mer,* 6(35):134–135, **1939.** 5 figs. **DLC**—(*Same item as* 2C–106, n March 1951, *MAB.*) *Subject Headings:* **1. Soil temperatures 2. Tahiti, Central South Pacific.**

4I–117 551.510.42:57(265/6)

†Rittenberg, S. C., **Investigations on the microbiology of marine air.** *Journal of Marine Re- earch,* 2:208–217, **1939.** 4 tables, 15 refs. **DWB**—Study made of microorganisms over an area of he Pacific. Great variation found in numbers of organisms at different stations, but generally num- ers decreased with distance from shore. Molds, bacteria, etc. found. Differences between ocean nd air microflora indicate terrestrial origin of most of these organisms. Possible use of these in- estigations in solving meteorological problems. (*Same item as* B–36, Feb. 1950, *MAB.*) *Subject leadings:* **1. Aerobiology 2. Microorganisms 3. Pacific Ocean.**

1940

4I–118 551.588.1

The changeless sea and its effect on southern California climate. *Meteorology and Aeronautics,* 2(7):56, July **1940. DLC**—Pacific Ocean acts as a huge air conditioning plant for southern Cali- ornia. A 10° increase in ocean temperature would change the California climate drastically. *ubject Headings:* **1. Marine influences 2. Pacific Ocean 3. Southern California.**

4I–119 551.513(962

*Giovannelli, J. L., **Atmospheric currents in French Oceania.** *Pacific Science Congress, 6th, Berkeley, 1939, Proceedings*, 3:697–705, **1940.** 3 figs., 2 tables, refs. **DA**—Detailed study of vertical stratification (mixed layer, trades, transition, antitrades) of air above Tahiti (*see* 4I–108 above) based on 1091 soundings, 19% as high as 10,000 m. Tables of mean velocities and directions of upper air winds and charts showing vertical velocity profiles included. *Subject Headings:* **1. Upper air winds 2. Tahiti 3. Southeast Pacific.**

4I–120 551.582:656.6(265

*Great Britain. Hydrographic Office, **Japan pilot, Vol. I. Comprising Honshū (except its southern coast), Hokkaidō, the southern coast of Karafuto and Chishima Rettō.** 4th ed. **1938.** 435 p. **Vol. II. Comprising Nansei Shoto, Kyushu, Shikoku, the southern coast of Honshu, Naikai and Nanpo Shoto.** 4th ed. **1940.** 757 p. Also: **South and east coasts of Korea, east coast of Siberia, and Sea of Okhotsk pilot, comprising the coast from the south-western extreme of Korea to Cape Skipunski on the eastern coast of the Kamchatka Peninsula; and Quelpart Island, Tsushima and Sakhalin.** 3rd ed. **1937.** 658 p. figs., tables, refs., photos, fold. charts. **DLC**—Vol. I (p. 3–25) and Vol. II (p. 3–15) of Japan pilot and South and East coasts of Korea, etc. pilot (p. 8–19) consist of general comments on pressure, winds (local and gales), depressions, typhoons, humidity, visibility, air and sea surface temperatures and precipitation with a small amount of tabulated data. Climatic tables in appendix. *Subject Headings:* **1. Pilot guides 2. Japan 3. Korea 4. Siberia 5. Northwest Pacific.**

4I–121 551.26.6:57

Schweigger, Erwin H., **Studies of the Peru coastal current with reference to the extraordinary summer of 1939.** *Pacific Science Congress, 6th, Berkeley, 1939, Proceedings*, 3:177–195, **1940.** 8 maps. **DA**—Account of effects on weather conditions and sea and bird life of an offshore southward extension of a tongue of warm water off the Peruvian coast, based on observations from six oceanographic voyages between Nov. 1938 and May 1939. *Subject Headings:* **1. Sea surface temperatures 2. Peru current 3. Marine influences 4. Southeast Pacific.**

4I–122 551.582(932

*Suraud, P. and Schmidt, H., **Climatologie de la Nouvelle-Calédonie.** [Climatology of New Caledonia.] *Pacific Science Congress, 6th, Berkeley, 1939, Proceedings*, 3:719–749, **1940.** 8 figs., 22 tables. **DWB**—A climatological survey based on 1935–1938 data compiled before the start of the official meteorological service in New Caledonia, March 1939. Data tabulated. *Subject Headings:* **1. Climate of New Caledonia 2. New Caledonia, Southwest Pacific.**

4I–123 551.465:551.582

Sverdrup, Harald U., **The currents of the Pacific Ocean and their bearing on the climates of the coasts.** *Science*, New York, 91(2360):273–282, **1940.** 6 figs. **DLC**—Author quickly reviews factors (latitude, land and sea distribution, atmospheric circulation, ocean currents) which determine climate and presents charts of Pacific Ocean showing August and Sept. and Feb. and March pressure in relation to surface currents. Effects on coastal climate of various Pacific currents and of the main feature of the circulation (northward transport of warm low latitude waters on western boundaries and the reverse on the eastern) discussed. *Subject Headings:* **1. Marine influences 2. Ocean currents 3. Pacific Ocean.**

4I–124 551.465:551.506

Takahashi, Y., **Sea currents and weather in Japan.** *Meteorological Society of Japan, Journal, 2nd Ser.*, 18(5):149–158, May **1940.** 11 figs., eqs. English abstract p. 29. **DWB**—Forecast implications of the dependence of daily pressure distribution in the vicinity of Japan on predominance of Kurile and other cold currents over the warm currents pointed out. *Subject Headings:* **1. Marine influences 2. Northwest Pacific 3. Japan.**

4I–125 551.582:656.6(265)

*U.S.S.R. Gidrograficheskoe Upravlenie, **Lotsiia Tikhogo Okeana. Chast' II. IAponskoe More, vostochnyĭ i iuzhnyĭ berega Korei.** [Pacific Ocean Pilot. Pt. II. Japan Sea, East and South shores of Korea.] Leningrad, **1935.** 311 p. Also: . . . **Severnyĭ bereg Ostrova Khokkaido, iuzhnyĭ i vostochnyĭ berega Ostrova Sakhalina, Ostrova Suisiu Sioto i Tsisima Retto.** [. . . Northern shores of Hokkaido, south and east shores of Sakhalin, Suisio Sioto and Chishima Retto.] Leningrad, **1940.** 311 p. illus. And: . . . **IUzhnyĭ bereg ostrova Sikoku i iuzhnyĭ i vostochnyĭ berega ostrova Khonsiu.** [. . . Southern shore of Sikok Island and eastern shore of Honshu.] Leningrad, **1940.** 234 p. **DLC**—Contain chapters on the hydro-meteorological characteristics of the areas in question, tables of average monthly climatic data, charts of currents and tides, bathy-

ietric charts and wind roses. *Subject Headings:* **1. Pilot guides 2. Northwest Pacific 3. Japan . Korea. I. Mamontov, N. S. (*comp.*).**

1941

4I–126 551.515.11

Arakawa, H. and Maekawa, M., **Statistical studies on cyclogenesis in Japan and the neighbour-ng seas.** *Meteorological Society of Japan, Journal, 2nd Ser.*, 19:339–344, 1941. 6 figs., 2 tables. n Japanese, English summary p. (32). **DWB**—Study made of place of origin, movement and easonal distribution of more than 4000 cyclones over Japan and the neighboring seas. Distribution f land and water showed definite influence on place of cyclogenesis. *Subject Headings:* **1. Cyclones . Cyclogenesis 3. Storms at sea 4. Sea of Japan.**

4I–127 551.46:016

†Grier, Mary Catharine (*comp.*), **Oceanography of the North Pacific Ocean, Bering Sea and ering Strait: a contribution toward a bibliography.** *Washington. University, Publications. ibrary Series*, v. 2, 1941. 290 p. **DLC**—Extensive coverage of physical oceanography and marine iology of the region. References, a few briefly abstracted, include books, magazine articles and ther documents in English and foreign languages. *Subject Headings:* **1. Oceanographic bibli-graphies 2. North Pacific 3. Bering Sea 4. Bering Strait.**

4I–128 551.506.7:629.13(265)

*Houghton, Walter C., **Flying conditions and air mass characteristics in the Guam–Manila–Hong Kong sector during 1939.** *Pan American Airways, Inc., Pacific Division, Meteorological Dept., Report*, No. 10, Jan. 20, 1941. 45 p. 38 tables. **DWB**—Discussion of and tabulated data rom over 120 vertical soundings over Guam, Manila and Hong Kong accomplished in 1939 by an American Airways planes equipped with meteorographs. Chief characteristics of trades (T_m ir) and steady southwest winds (E_m air) compared. One case included of a flight in a marked SW onvergence zone. *Subject Headings:* **1. Aeronautical meteorology 2. Flying weather 3. Meteor-graphs 4. Northwest Pacific.**

4I–129 551.582(265)

*Knoll, Denys W. and U. S. Navy. Asiatic Fleet. Aerological Unit, **Climatology Asiatic tation.** *U. S. Hydrographic Office, H.O. Publication*, No. 219, 1941. 97 p. refs., fig., tables, harts. Supplement to: *U. S. Navy. Asiatic Fleet, Information Bulletin*, No. 3–39. **DLC**—ntroduction contains forecasting axioms and explanation of data. Climatological data for China oast, French Indochina, Malay Peninsula, Siam, East Indies, Indian Ocean, Pacific Islands, Japanese slands, Philippines, Yangtze River and Russia include wind direction and velocity, fog, cloud, rain, ying weather, typhoons and remarks on state of sea for East Indies and a few on China Sea. Monthly charts of typhoon tracks follow p. 97. *Subject Headings:* **1. Climatic data 2. Typhoon racks 3. West Pacific 4. Indian Ocean.**

4I–130 551.582(96):629.13

*§U. S. Weather Bureau, **Pacific Islands.** *U. S. Weather Bureau.* [*Statistics Div.*], *Preliminary Report*, No. 2, 1941. 52 p. charts, graphs, tables. **DWB**—A preliminary compilation of data on he climate and weather of the Pacific Islands and surrounding regions with discussion of island opography, climatology, and flying conditions, winds, ceilings and visibility and ice accretion to be xpected in each season along successive sections of the Honolulu–Canton–Rockhampton and Honolulu–Midway–Port Moresby air routes. Data on storms, fronts and troughs in the Pacific erived from 1939–41 Pan American Airways weather charts tabulated. Charts show the mean ositions of the Polar and Equatorial Fronts. *Subject Headings:* **1. Aeronautical meteorology . Flying weather 3. Pacific Islands 4. Central Pacific 5. South Pacific. I. U. S. Air Weather Service.**

4I–131 551.582(266.5)

U. S. Weather Bureau, Marine Div., **Weather of the Atlantic and Pacific oceans, July 1920–Feb. 1922, April 1922–Nov. 1941.** *Monthly Weather Review*, 48(7)–50(2), 50(4)–69(11), 1920–1941. ables. Title varies. **DWB**—Brief monthly notes on atmospheric pressure, cyclones and gales, yphoons, fog, winds and other meteorological elements accompanied by a small amount of data and enerally prepared by WILLIS E. HURD of the Weather Bureau. *Subject Headings:* **1. Weather at sea . North Pacific I. Hurd, Willis E.**

1942

4I–132 551.515.8:629.13(265)

Buxton, E. B., **Winter flying conditions and air mass characteristics in the Guam–Manila–Hong Kong sector.** *U. S. Air Weather Service, Publications*, 4(4):1–5, June 1942. 4 figs., table. **DWB**—Figures show schematically the relation of the "southwest air" of the Philippines and the

"trade and northern" air and the resultant weather. A third air mass above flying levels is designated as tropical superior air. Text discusses frontal weather and air mass weather in the region. Air mass characteristics (surface to 14,000 ft) tabulated. *Subject Headings:* **1. Aeronautical meteorology 2. Air mass characteristics 3. Northwest Pacific.**

4I–133 551.506.7:629.13(265/6)

Clover, W. H., **Summary of flying conditions on the Pacific routes of Pan American Airways, Inc.** *U. S. Weather Service, Publications*, 4(4):6–10, June **1942.** 3 figs., 2 tables. **DWB**—Discussion of the variations of flying conditions on the California—Australia and California—Hong Kong air routes with the seasonal migrations of the polar front, the equatorial front, and the centers of atmospheric pressure. Monthly storms, fronts and troughs in the South and North Pacific tabulated from Pan American Airways weather charts for 1939–1940 and 1941. *Subject Headings.* **1. Aeronautical meteorology 2. Flying weather 3. Pacific Ocean.**

4I–134 551.509.31(265/6)

§Day, John A., **Synoptic analysis in the tropical Pacific.** Pan American Airways Inc., Transpacific Div., **1942.** 26 p. 32 figs., 12 plates, 13 refs. **DWB**—Three major type-forms for synoptic analysis in the tropical Pacific defined as: 1) one major stream flow from either hemisphere with one major boundary lying between the two flows; 2) a major stream flow from one hemisphere, and a major stream flow from the other hemisphere which is interrupted by the intrusion into the tropics of a front or trough from higher latitudes; 3) two boundaries marking the equatorward peripheries of two major doldrums lying between. Sub-types of one or more of the major types further subdivide the latter by geographical location, season and individual synoptic situations. Hypothetical and actual examples of synoptic analysis illustrate all types and sub-types. Constituency, position and movement of the tropical discontinuity discussed. *Subject Headings:* **1. Synoptic analysis 2. Tropical meteorology 3. Tropical fronts 4. Equatorial Pacific.**

4I–135 551.515.23(265)

Fennel, L. H., **On the development and maintenance of tropical cyclones in the Far East.** *U. S. Air Weather Service, Publications*, 4(4):16–21, June **1942.** 5 figs. **DWB**—A schematic diagram illustrates the development of tropical cyclones (typhoons) from the first fall in pressure to the mature vortex. "Depressions" and "disturbances" are recognized as steps in genesis of typhoons and the nature and probable origin of each discussed. Energy supply of typhoons considered. *Subject Headings:* **1. Tropical cyclones 2. Cyclogenesis 3. West Pacific.**

4I–136 551.582.3(265)

Great Britain. Meteorological Office, **Monthly meteorological charts of the western Pacific Ocean.** London, Meteorological Office, Marine Branch, **1942.** 120 p. M.O.M. No. 422. **DWB**—From 60°S to 60°N; air and sea temperatures, fog, wind frequency, force and direction, swell amount and direction, and other meteorological data. Where observations were insufficient two squares were combined and a wind rose placed in center of area. *Subject Headings:* **1. Marine meteorological charts 2. West Pacific.**

4I–137 551.506(265)

*Japan. Hydrographic Dept, **Appendix to Military Weather Data. Vol. 5, Australia, New Guinea, New Zealand, Pacific Islands—Weather tables.** *Japan. Hydrographic Dept., Publication* No. 472, March **1942.** 119 p. 3 maps, all tables. Translation to titles of tables inside front cover. **DN-HO**—Entirely data. Pt. 1 consists of general weather tables. Pt. 2 contains special weather tables, including data for cloud amount, wind set and drift, frequency of clear days, cloud days, gales, visibility and sunlight duration. *Subject Headings:* **1. Meteorological data 2. West Pacific.**

4I–138 551.553.6(96)

Pan American World Airways, Inc., **Wind roses for Canton Island, Midway Island and Noumea Island (N. C.).** *U. S. Air Force. Weather Research Center, Publications*, 5(1), June **1942.** 47 p. diagrs. **DLC, DWB**—Wind roses show average monthly wind directions and velocities at Canton Island (1½ years), Midway Island (7 years) and Noumea Island (2–2½ years) at the surface and at 1000 ft intervals up to 7000 ft. Climatological data for Canton Island included. *Subject Headings.* **1. Wind roses 2. Canton Island 3. Midway Island 4. Noumea Island, New Caledonia.**

4I–139 551.582(265)

U. S. Air Weather Service, **General synopsis of dominant meteorological situations from the China Coast to the Bering Sea.** *U. S. Air Weather Service, Publications*, 1(4), May **1942.** 9 p. fig., 2 tables, 7 plates. **DWB**—Brief discussion of the seasonal variations in weather (e.g., fog

andstorms) occasioned by the shift from the cold dry, dust-laden northerly monsoon of winter to he warmer, moist southerly monsoon circulation of summer all along the coastal area in question. Quarterly sea surface and air temperature charts reprinted from Schott's "Geographie des Indischen nd Stillen Ozeans" (*see* 4I–93 above). *Subject Headings:* **1. Marine meteorology 2. Coastal veather 3. Northwest Pacific.**

4I–140 551.582:629.13(266.5)

*§U. S. Weather Bureau, **Air routes, Alaska to Siberia.** *U. S. Weather Bureau. Statistics Div., Preliminary Report*, No. 23, **1942.** 99 p. charts, tables. **DWB**—Climatic conditions along two outes across the North Pacific from Alaska to Siberia discussed. From the meteorological stand- oint alone, the northern route (from Fairbanks to Nikolaevsk via Nome and Okhotsk) appears to ave a marked advantage over the southern route (from Kodiak to Khabarovsk via Petropavlovsk nd Tokyo) in colder months of the year and a slight advantage in summer. Disadvantages of the outhern route are continuous succession of cyclonic depressions and a high percentage of dense fogs. Northern route, while encountering extremely low temperatures in winter, is preferable because of he larger percentage of clear skies. Winds variable over both. *Subject Headings:* **1. Aeronautical neteorology 2. Flying weather 3. Bering Sea 4. North Pacific. I. U. S. Air Weather Service.**

4I–141 551.557(265/6)

*U. S. Weather Bureau, **Wind factors over the Pacific Ocean and airplane soundings at selected erminals.** *U. S. Weather Bureau. Statistics Div., Preliminary Report*, No. 20, **1942.** 37 p. 37 ables. **DWB**—A tabulated summary of the wind factors obtained from the logs of Pan American lights across the Pacific (California–Australia; California–Hong Kong). Data presented in form f frequency distribution (in knots) by months. Total number of observations and average flight evel given. Tables 32–37 contain average upper air conditions from airplane meteorograph records, 939–41, at Hong Kong, Manila and Guam. *Subject Headings:* **1. Aeronautical meteorology 2. Winds at sea 3. Airplane soundings 4. Pacific Ocean 5. Southwest Pacific. I. U. S. Air Weather Service.**

1943

4I–142 551.509.31(265)

Gibbs, W. J., **Synoptic analysis over the tropical S.W. Pacific area.** *Australia. Meteorological Bureau, Bulletin*, No. 30, **1943.** 23 p. 13 figs., 17 refs. **DWB**—Paper represents results of three ears' study of daily synoptic situations over the area 0°–23°S, 111°–165°E. Author draws attention articularly to those techniques of tropical synoptic analysis which differ markedly from those used n high latitude analysis. Pressure disturbances, advective and convective processes, wind and ressure fields, tropical and intertropical fronts and seasonal weather variations discussed. No ynoptic charts included. *Subject Headings:* **1. Synoptic analysis 2. Tropics 3. Southwest Pacific 4. Southern Hemisphere.**

4I–143 551.573:551.511

Jacobs, Woodrow C., **Sources of atmospheric heat and moisture over the North Pacific and North Atlantic Oceans.** (In: Rossby, C.-G., **Boundary-layer problems in the atmosphere and ocean.** New York, **1943.** p. 19–40.) **DWB**—Summary of results of investigation concerned with theoretical computations of mean seasonal evaporation and heat exchange over North Pacific and North Atlantic resented; emphasis in Scripps Institution investigations is being placed upon short period and non- eriodic variations in these quantities over the oceans. *Subject Headings:* **1. Evaporation from seas 2. Energy exchange sea-atmosphere 3. North Pacific 4. North Atlantic.**

4I–144 551.506.5(26)

*†Jacobs, Woodrow C. and Hafstad, Katharine (Clarke), **Scientific results of Cruise VII of the Carnegie during 1928–1929. Meteorology I. Meteorological results of Cruise VII of the Carnegie, 1928–1929.** *Carnegie Institution of Washington, Publications*, No. 544, **1943.** 168 p. 62 figs., 81 tables, 4 refs., 3 appends. **DLC**—Meteorological observations tabulated and discussed for 22 arts of cruise route (divided on basis of similarity of sea-surface temperatures) include atmospheric ressure, air and sea-surface temperature, humidity, evaporation and miscellaneous meteorological henomena. Abstract of the Carnegie log, tables of Greenwich mean noon observations, tables of ourly values of meteorological elements mentioned above and 62 figures including photos of in- truments and charts comparing various weather elements appended. [*See also* 4I–147 and 172 elow.] *Subject Headings:* **1. Carnegie Expedition, 1928–1929 2. Marine meteorological data 3. Pacific Ocean 4. Atlantic Ocean.**

4I–145 551.582(265.5)

*Seelye, C. J. (*ed.*), **Climatological notes. South Pacific Region.** *New Zealand Meteorological Office, Ser. C*, No. 1–19, **1943.** figs., charts, tables, refs. **DLC**—A series of 19 concise, but analytical studies based on meteorological records varying from 3–42 years in length, for individual islands or groups of islands in the South Pacific. The text is well supported by topographic charts, graphs, surface and upper wind roses (Baillie type), and by tables of average and extreme values and frequencies of the various climatic elements. The general order of treatment is: description of island and history of observations, wind, visibility, cloud, rain, temperature, humidity, thunderstorm and sea conditions. Upper wind data and roses are included for Samoa, Tonga, Tahiti, Kermadecs (Raoul Is.) and Fiji. Wherever literature is available, bibliographies are included. The studies include the climate of: 1)Penrhyn Island, 2) Manihiki Island, 3) Pukapuka-Danger Island, 4) Aitutaki Island, 5) Rarotonga, 6) Niue Island, 7) Pitcairn Island, 8) Tonga Group, 9) Kermadecs (Raoul Island), 10) Chatham Island, 11) Fanning Island, 12) Malden Island, 13) Gilbert Group, 14) Ellice Group, 15) Tokelau Group, 16) Samoa, 17) Rotuma Island, 18) Fiji, and 19) Tahiti. (*Same item as* 9–135, Sept. 1950, *MAB.*) *Subject Headings:* **1. Climate of Pacific Islands 2. Upper air winds 3. Pacific Islands 4. South Pacific.**—*M.R.*

4I–146 551.521.64:551.54:527(265/6)

Sekido, Yataro; Asano, Yosihiro and Masuda, Tokio, **Cosmic rays on the Pacific Ocean. Pt. I, Latitude effect. Pt. 2, On the barometer effect of cosmic rays.** *Tokyo. Institute of Physical and Chemical Research, Scientific Papers*, 40(1136/1139):439–466, July **1943.** figs., tables, refs. **DWB**—From April 1937 to April 1939 measurements were made on board Japanese vessels between Japan and Melbourne, Australia, and Japan and Seattle. Results compared with those of Turner and Compton for the route from Vancouver–Sydney (March 1936–Jan. 1937), and Gold (July 1937–Sept. 1938). Instruments are described. Barometer and temperature data for every two hours used to determine pressure effect. Latitude effect (53°N to 45°S) is plotted for each voyage, each season and for the year, and for various authorities. Atmospheric and magnetic latitude effects also shown graphically. Latitude effect is more important than atmospheric (temperature) effect, as high surface temperatures are somewhat compensated by corresponding low tropopause and stratosphere temperatures and vice versa, so mean temperature of the atmosphere does not vary as much as do surface temperatures. Temperature and longitude effects removed from absorbed latitude effects to give true latitude effects. In Pt. 2 the barometric effect is analyzed for the 10 sections of the 2 routes. Latitude variations of β (barometer effect) and σ_F ("barometer-uncorrelated fluctuation") shown graphically and discussed statistically. *Subject Headings:* **1. Cosmic ray variations 2. Pacific Ocean.**—*M.R.*

4I–147 551.506.7(26)

*Thomson, Andrew, **Scientific results of Cruise VII of the Carnegie during 1928–1929. Meteorology II. Upper-wind observations and results obtained on Cruise VII of the Carnegie.** *Carnegie Institution of Washington, Publications*, No. 547, **1943.** 93 p. 46 figs., 8 tables, 6 refs. **DLC**—Discussion and tabulation of 171 pilot balloon observations (to average height of about 5 km) over Pacific Ocean chiefly in tropical trade wind zone, Oct. 1928 to Nov. 1929. Observational methods and weather conditions at times of flights described and numerous charts included. (*See* 4I–172 below.) *Subject Headings:* **1. Carnegie Expedition, 1928–1929 2. Upper air winds 3. Trade winds 4. Pilot balloon data 5. Equatorial Pacific.**

4I–148 551.576.2(798)

U. S. Air Weather Service, Weather Central Alaska, **Clouds of the Aleutian Islands.** *U. S. Air Weather Service, Technical Report*, 105–28, Nov. **1943.** n.p. all photos. **DWB**—Aerial photographs of various cloud forms over the Aleutians with comments on cloud heights, temperature, dew point and wind and notes to pilots regarding turbulence, poor visibility, icing and other flight hazards to be expected. Inset maps show general synoptic situation and location and topography of island in question. *Subject Headings:* **1. Cloud formations 2. Cloud photographs 3. Aeronautical meteorology 4. Aleutian Islands, Central North Pacific.**

4I–149 551.582(966)

*†U. S. Ethnogeographic Board, **Meteorology of the Caroline Islands. Cross-cultural survey.** *Yale University. Institute of Human Relations, Strategic Bulletins of Oceania*, 7, **1943.** 28 p. 8 tables. **DLC**—Rainfall data for short but varying periods for Kusaie, Ponape, Truk, Lamotrek, Yap, and Palau; wind frequencies for Ponape; thunderstorm frequencies for several islands and brief discussion of temperature, pressure, humidity, cloudiness, storms, etc. constitute all of the data that could be gleaned from 24 sources. Most of the numerical data are for the year 1890 except precipitation data which are for periods during the 1902–1911 decade. *Subject Headings:* **1. Climate of Caroline Islands 2. Caroline Islands 3. West Equatorial Pacific.**

4I–150 551.582(96)

*†U. S. Ethnogeographic Board, **Meteorology of the Marshall Islands. Cross-cultural survey.** *Yale University. Institute of Human Relations, Strategic Bulletins of Oceania*, 2, **1943.** 22 p. 15 tables, 26 refs. **DLC**—From 26 sources rainfall data (1892–1910), frequency of wind, clouds, temperature, pressure, thunderstorms, etc. (1892–8 or shorter periods) are extracted and presented with brief discussion. *Subject Headings:* **1. Climate of Marshall Islands 3. Marshall Islands, West Equatorial Pacific.**

4I–151 551.509.2(266)

§U. S. Weather Bureau, **Daily synoptic series. Historical weather maps, Southwest Pacific sea level.** Wash., D. C., **1943. DWB**—Consists of monthly volumes of daily synoptic maps (0700, 120th E meridian time) for the period Jan. 1932–Dec. 1934, covering the area, 70°E–145°W, 30°N–50°S. Analyzed with the assistance of the meteorological staff of New York University. Unanalyzed maps available for 1935–37. *Subject Headings:* **1. Historical weather maps 2. Synoptic charts 3. Southwest Pacific.**—*H. Wexler and M. Tepper.*

4I–152 551.582(265/6)(96)

*U. S. Weather Bureau, **The Pacific area. Part I, General discussion of climate of the tropical Pacific. Part II, Islands of the southwest Pacific. Part III, Polynesia and the Philippines. Part IV, Upper wind data.** *U. S. Weather Bureau. Statistics Div., Preliminary Report*, No. 31, **1944.** figs., plates, tables, refs. **DWB**—Pt. I presents a general picture of the climate of the islands of the southwest Pacific in relation to that of the whole Pacific area. Pt. II contains extensive tables which represent a preliminary survey of existing meteorological data for the island of New Guinea, the New Britain and New Ireland groups, the Solomon, New Hebrides, Santa Cruz, New Caledonia and Loyalty Islands. Pt. III gives a table of station locations in Polynesia and the Philippines and descriptive meteorological notes and tables by island groups. Pt. IV includes tabulated surface to 39,400 ft wind data where available for stations in the central Pacific south of 20°N, Midway Island, Hawaiian Islands, coast of Peru, New Caledonia and Australia and seasonal wind roses. *Subject Headings:* **1. Marine climatic data 2. Climatic data 3. Upper air wind data 4. Pacific Islands 5. Southwest Pacific 6. Pacific Area.**

4I–153 551.582(935)

*§U. S. Weather Bureau, **Weather summary, Southwest Pacific, Solomon Islands area, for use with Naval Air Pilots.** *U. S. Hydrographic Office, H.O. Publication*, No. 275, **1943.** 133 p. tables, 33 charts. **DWB**—Area covered embraces approximately that part of the South Pacific between the equator and 33°S, 130°–173°E. Extensive tables and charts include land station and 5-degree ocean area meteorological tables, a chart of monthly precipitation distribution for 26 stations, climatic conditions pertaining to ocean surfaces only (from ship data), predominant direction, constancy and Beaufort force of sea winds, visibility, percentage frequency of rain, thunderstorms and squalls, hurricane tracks, upper air and wind stations and upper air wind roses. *Subject Headings:* **1. Marine climatic data 2. Upper air wind roses 3. Southwest Pacific.**

1944

4I–154 551.582(02)(265/6)

†Bryan, E. H., Jr., **Geography of the Pacific.** Honolulu, **1944.** 100 p. figs., maps, illus., bibliog. p. 90–93. **DPL**—Pages 25–37 constitute a brief popular summary of the general characteristics of temperature, wind, air pressure, humidity, precipitation and frequency of storms over the Pacific. *Subject Headings:* **1. Marine climatology 2. Tropical cyclones 3. Pacific Ocean.**

4I–155 551.515.83(265)

†§Huang, Hsia-Chien, **Frontogenetic regions in the Far East.** Thesis—California Institute of Technology. [n.d.] 80 p. figs., 27 charts, 33 eqs., bibliog. p. 75–77. Reprinted as: U. S. Office of Naval Operations, NAVAER 50-IR-104, **1944. DWB**—By combining the monthly air transport data of Werenskiold (see 4I–33 above) and the monthly wind force and direction data of Chu (1934) author constructed a fairly complete picture of the general field of motion in the Far East. He then determined the regions of frontogenesis in the manner developed by Petterssen in his "Contribution to the theory of frontogenesis" (*Geofysiske Publikasjoner*, 1936). *Subject Headings:* **1. Frontogenesis 2. Northwest Pacific.**

4I–156 551.465

Mears, E. G., **The ocean current called "The Child."** *Smithsonian Institution, Washington, Annual Report*, 1943:245–251, **1944.** 2 figs. **DLC**—A brief descriptive account of "El Niño," the warm current which causes such disastrous weather conditions when it extends abnormally far

south along southern Ecuador and northern Peru. *Subject Headings:* **1. Marine influences 2. El Niño Current 3. Southeast Pacific.**

4I–157 551.509.3:551.594.7

*§Smith, Dillon E., Fletcher, Robert D. and others, **Tropospheric weather factors likely to affect superrefraction of VHF-SHF radio propagation as applied to the Tropical Western Pacific.** *U. S. Weather Bureau, Report* RP-1, July 1, **1944.** 100 p. 53 figs., eqs., append. **DWB**—Purpose of this paper is to serve as a guide to forecasting radar transmission conditions in the Tropical Western Pacific. Computing methods for the M-curve, using aerological low-level sounding data, are given. (*Same item as* 2H–19, Aug. 1951, *MAB.*) *Subject Headings:* **1. Radar transmission forecasting 2. West Equatorial Pacific.**—*W.N.*

4I–158 551.465

Sverdrup, Harald U., **The California current.** *California. University. Scripps Institution of Oceanography, Contributions, New Ser.*, No. 227, **1944.** 3 figs., 9 refs. **DA**—After a brief historical sketch of previous ideas regarding the current, author presents his own theory of the source of the cold California current, effects of prevailing winds on it (deflection and upwelling) and associated marine biological and climatic conditions. *Subject Headings:* **1. California current 2. Cold currents 3. Upwelling 4. Marine influences 5. Northeast Pacific.**

4I–159 551.589(265/6):629.13

†U. S. Air Weather Service, **Interpretation of weather over the Pacific.** *U. S. Air Weather Service, Report*, No. 640, June **1944.** 23 p. 16 figs., bibliog. p. 22–23. **Supplement I, Weather over Pacific air routes.** May **1944.** 11 p. **DWB**—A well illustrated, primarily descriptive account of the normal and anomalous weather conditions encountered on the Pacific Ocean, with mention of the general circulation and air mass characteristics, zones of convergence and divergence, fronts, topographic effects on weather, etc. Among the figures are a N–S cross section through the inter-tropical front, a typical cold front over the Pacific and air flow and weather zones over the Pacific by months. Ample bibliography included. *Subject Headings:* **1. Marine meteorology 2. Aeronautical meteorology 3. Weather at sea 4. Pacific Ocean.**

4I–160 551.582(96)

*§U. S. Weather Bureau, **Weather guide for long range planning. Jaluit, Marshall Islands.** U. S. Weather Bureau, War Advisory Council on Meteorology, Sept. **1943.** 8 p. tables, graphs. **Truk and Ponape, Caroline Islands.** *Ibid.*, Oct. **1943.** 13 p. tables, graphs. **Palau, Caroline Islands.** *Ibid.*, Nov. **1943.** 12 p. tables, graphs. **Titizima, Bonin Islands.** *Ibid.*, Jan. **1944.** 9 p. tables, graphs. **Typhoon tracks supplement.** *Ibid.*, March **1944.** 22 p. all charts, 4 refs. **DWB**—Excellent graphical presentations of normal and abnormal weather for use in estimating general meteorological conditions in the future. Cloudiness, wind, precipitation, temperature, humidity and other selected monthly data are tabulated. "General weather-expectancy tables" based on data for periods up to 30 years long and "sequence and persistency" tables for cloudiness and precipitation also included. Supplement contains monthly (some bi-monthly) charts of typhoon tracks, 1910–1930, in the southwestern Pacific Ocean. *Subject Headings:* **1. Climate of Marshall Islands 2. Climate of Caroline Islands 4. Climate of Bonin Islands 5. Typhoon tracks 6. Northwest Pacific.**

1945

4I–161 551.582(265) 551.589(265)

*†§Dodington, E. A. M., **Weather in the China Seas and in the western part of the North Pacific Ocean.** Great Britain, Meteorological Office, **1945.** 3 v. 165+44 p.; 771 p.; 170+8 p. numerous figs., plates, tables, charts, bibliogs. M.O. 404a–404c. **DLC**—The three volumes comprise one of the most extensive, well-illustrated and fully indexed studies of weather in the Northwest Pacific and China seas (0°–55°N; 100°–180°E). In Vol. I, Pt. 1 (General information), the distribution of the several meteorological elements over the region is described with the aid of numerous synoptic charts, normal distribution charts, wind roses and storm track diagrams. Pt. 2 (Typhoons) deals exclusively with typhoon characteristics, zones of origin, paths and forecasting. Vol. II (Local information) consisting almost entirely of tables and charts, presents detailed meteorological data and weather descriptions of at least eleven localities. Comprehensive, well organized bibliography of 207 items (p. 703–717) included. Vol. III describes the present state of knowledge in respect to air-mass analysis in the region and contains a selection of synoptic charts (pressure, wind direction and force, weather and air temperature) arranged in 19 series chosen to illustrate conditions which gave rise to particular sequences of weather within limited regions (mostly above 20°N). *Subject Headings:* **1. Marine meteorology 2. Weather forecasting 3. Typhoons 4. Northwest Pacific 5. China Sea.**

4I–162 551.582(96)

*†§Great Britain. Admiralty. Naval Intelligence Div., **Pacific Islands.** *Great Britain. Admiralty. Naval Intelligence Div., Geographical Handbook Series*, v. 1, **1945.** figs., tables, photos. **DWB**—Chapter on climate, (p. 57–104) contains descriptive comments on pressure and wind, temperature, humidity, visibility and fog and rainfall with 11 climatic tables based on data from CHOTT and from the U. S. Hydrographic Office. *Subject Headings:* **1. Marine climatology 2. Climatic data 3. Pacific Islands 4. Pacific Ocean.**

4I–163 551.515.2:551(96)

*Hobbs, W. H., **Fortress Islands of the Pacific.** Ann Arbor, Mich., J. W. Edwards, **1945.** 186 p. 107 figs., bibliog. p. 163–176. **DWB**—Brief popular description of hurricanes, especially as they affect Pacific islands and atolls (p. 155–158). The book itself provides a handy reference source for topographic, geological and historical information on each of the many islands and island groups of the Pacific. (*Same item as* 3.10–122, Oct. 1952, *MAB.*) *Subject Headings:* **1. Typhoons 2. Pacific Islands.**—*M.R.*

4I–164 551.46:55.038:551.582(265/6)

Mears, Eliot Grinnell, **Pacific Ocean handbook.** Stanford University, California, J. L. Delkin, **1945.** Rev. and enl. ed. with new maps. 1 v. 55 figs., appends., fold. chart., maps. **DLC**—First of its kind, this handbook "contains in condensed form much essential science of the underlying and new knowledge pertaining to the great Pacific area. Appendices provide quick information dealing with wind velocity and visibility scales, air and sea distances, etc. Global maps of the whole Pacific basin are inserted." Of special marine meteorological interest are chapters on currents, winds, violent storms, temperature, precipitation, fog and visibility. *Subject Headings:* **1. Marine meteorology 2. Handbooks 3. Pacific Ocean.**

4I–165 551.582.2(51/2, 519) 551.46(265)

*U. S. Navy Dept. Pacific Fleet and Pacific Ocean Areas, **Climatology and oceanography of operational areas of the Western Pacific.** *U. S. Navy. Pacific Fleet and Pacific Ocean Areas, Cincpac-Cincpoa Bulletin*, No. 4–45, March **10, 1945.** 2 v. bibliog. in each volume. **DWB-DLC**—Comprehensive source of data, covering Pacific westwards from 150°E and northward from 5°S and parts of the northern Pacific. Data for numerous land stations given for Japan, Korea and China. Great amount of data was obtained from Japanese documents, captured during the war. Tables contain data for air temperature and precipitation, frequency of precipitation days, cyclones, typhoons, snowfall, thunderstorms, frost, clouds, fog, haze, low visibility, wind directions, as well as for icing level and wind velocity. The following oceanographic elements are included: sea surface temperature, ocean current directions and velocities, frequency of low wave and swell heights and directions. *Subject Headings:* **1. Climatic data 2. Oceanographic data 3. Pacific Area 4. Japan 5. Korea 6. China.**—*A.A.*

4I–166 551.515.13:551.515.73(4)(51/2)(265)

U. S. Weather Bureau, **Northern Hemisphere pressure center summaries [for years 1929–1938 for European theater, Pacific theater, Asiatic theatre]. [1943.]** unpaged. all charts. Supplement No. 1, **A comparison of the monthly frequencies of low centers found on the Japanese Kobe Weather Maps with those found on the Northern Hemisphere Historical Maps for the years 1929–1936 for the area extending from 10°N to 40°N and 105°E to 140°W.** Washington, D. C., May **1945.** unpaged. entirely charts. **DWB**—Based on tracks of cyclones and anticyclones plotted from Northern Hemisphere Historical Weather Map series. Data given in form of monthly frequencies for each 5° square for period 1929–1938, both for total frequency and frequency of various intensities. Three areas covered: 1) Western Europe and NE Atlantic, 2) Southeast Asia and adjacent seas, and 3) Western Pacific (Hawaii to Sea of Japan). *Subject Headings:* **1. Cyclone frequencies 2. Anticyclone frequencies 3. Atmospheric circulation 4. Northern Hemisphere Historical Maps 5. Kobe Weather Maps 6. Western Europe 7. Southeast Asia 8. North Pacific.**—*M.R.*

4I–167 551.552(265)

U. S. Weather Bureau, **Wind frequency distribution, northwest Pacific Ocean, 3, 6, and 10 km.** U. S. Weather Bureau, July **1945.** 2 p.+18 charts. **DWB**—Contains Baillie wind roses representing frequencies of wind direction and wind speed at each of the levels for two-month periods. Based on "Daily Historical Weather Maps, Northern Hemisphere, Sea Level" for 1939–1940, "Wind Frequency Distribution, North Atlantic Ocean, 6 and 10 km" and pilot balloon data for several Pacific Ocean stations. *Subject Headings:* **1. Baillie wind roses 2. Marine meteorological charts 3. Northwest Pacific.**—*H. Wexler and M. Tepper.*

1946

4I–168 551.587:551.576(266)

Alpert, Leo, **Atmospheric cross-sections of the stratus zone of the tropical eastern Pacific Ocean.** *American Geophysical Union, Transactions*, 27(6):800–813, Dec. **1946.** 12 figs., 3 tables, refs. **DWB**—Significant features of the surface and upper-air temperature and wind circulation, cloudiness, and weather over the tropical eastern Pacific Ocean during the northern summer season are revealed by atmospheric cross-sections based on observations made on reconnaissance flights of the AAF Tropical Weather Unit in all directions from Seymour Island in the Galapagos Archipelago on August 14 to 18, 1945. Observations of winds aloft show a shallow southerly wind flow in the lower layers, while aloft the wind flow is easterly. Temperature soundings show a low inversion that is caused by cooling of the surface air by upwelling cold water and subsidence in the South Pacific anticyclone. Stratiform clouds which form below the inversion cover a huge area from the west coast of South America to beyond 96°W longitude, the westernmost limit of the observations. Areal distribution of the stratiform clouds and associated phenomena over the tropical eastern Pacific Ocean is shown by analyzed charts containing a dense network of observations from over the ocean made by patrol aircraft during 1942 and 1943. (*Same item as* 3F–94, June 1952 *MAB.*) *Subject Headings:* **1. Cross sections 2. Stratus clouds 3. Airplane weather reconnaissance 4. East Equatorial Pacific.**—*Author's abstract.*

4I–169 551.582(265)(866)

*Alpert, Leo, **Contributions to the climate of the tropical Eastern Pacific Ocean.** Thesis (*PhD*)—Clark University, May **1946.** 191 p. 16 figs., 17 plates, photos., 11 refs. Microfilmed. **DWB**—Section I, "Air circulation of the tropical eastern Pacific Ocean," consists of the analysis of aircraft weather observations from the area, Feb. 1942–Jan. 1944 and pilot balloon data from the Galapagos Islands and makes available for the first time detailed information about yearly, seasonal, monthly and daily circulation. Mean monthly position of the intertropical convergence zone determined. Section II comprises an analysis of the weather and climate of Seymour Island (Galapagos) based on daily and upper air observations, late 1942–1945. In Section III, author identifies 11 of Köppen's climatic types and constructs a new map of climatic regions of the Pacific. *Subject Headings:* **1. Marine climatic data 2. Climatic data 3. Tropical meteorology 4. Galapagos Islands 5. East Equatorial Pacific.**—*From author's abstract.*

4I–170 551.582(866)

*Alpert, Leo, **Notes on the weather and climate of Seymour Island, Galapagos Archipelago.** *American Meteorological Society, Bulletin*, 27(5):200–209, May **1946.** 3 figs., 3 tables, 10 refs. **DWB**—Author gives brief history of weather records made in the Galapagos Islands from 1875 to date, mostly during botanical expeditions. A summary of data for Seymour Island where the weather station is located (1942–5) and typical Rainy Season and Dry Season hourly airways reports give a picture of the climate and weather of this arid region within ½° lat. of the equator. Typical soundings (to 400 mb) show difference between dry and wet season conditions aloft, and normal conditions at the same elevations. *Subject Headings:* **1. Climate of Galapagos Islands 2. Seymour Island, Galapagos, East Equatorial Pacific.**—*M.R.*

4I–171 551.587(866)

Alpert, Leo, **Weather over the tropical eastern Pacific Ocean, 7 and 8 March, 1943.** *American Meteorological Society, Bulletin*, 27(7):384–398, Sept. **1946.** 11 figs., ref., append. **DWB**—Cloud and other weather conditions encountered in a flight from Guatemala City to Seymour Island, Galapagos on 7 and 8 March 1943 are related in detail and presented visually on synoptic charts, cross sections and special cloud and wind streamline charts. A great deal more data is included on the charts than that obtained on the flight, as reports from other patrol or weather reconnaissance flights (e.g., from Salinas, Ecuador and Talara, Peru to the Galapagos) and from ships at sea are indexed. *Subject Headings:* **1. Tropical meteorology 2. Airplane weather reconnaissance 3. Seymour Island, Galapagos 4. East Equatorial Pacific.**—*M.R.*

4I–172 551.506.5(26)

†*§Carnegie Institution of Washington, **Scientific results of cruise VII of the Carnegie during 1928–1929 under command of Captain J. P. Ault.** *Carnegie Institution of Washington, Publications*, Nos. 545, 556, 568, 571, **1944–1946.** 4 v. illus., plates, tables, charts, diagrs., bibliogs. **DLC**—Four-volume series representing scientific results of last cruise of non-magnetic ship "Carnegie" covering nearly 45,000 nautical miles in 376 days on the Pacific. The four volumes deal with physical oceanography, chemical oceanography, meteorology and biology and suggestions for further research. Complete unannotated bibliography of cruise by Ruth M. Crow appears in Vol. IV (p. 107–110). Series is profusely illustrated with figures, diagrams, tables, maps, etc. Among the roster of well known authors are Ault, Fleming and Sverdrup. [*See also* 4I–147 above.] *Subject Headings:*

Carnegie Expedition, 1928–1929 2. Expeditionary climatic data 3. Geomagnetism 4. Oceanraphy 5. Pacific Ocean. I. Crow, Ruth M. II. Ault, J. P. III. Fleming, R. H. IV. Sverdrup, U.

4I–173 551.582:656.6(9)

*Great Britain, Hydrographic Office, **Pacific Islands pilot, Vol. I. The western groups comising the Territory of Papua, including the Louisiade Archipelago, the north-east and north coasts New Guinea, the Solomon Islands, the Bismarck Archipelago and the Caroline and Marianas ands.** 6th ed. **1933.** 608 p. **Vol. II. The central groups, comprising New Caldeonia and the s Loyalty; the New Hebrides Group and Santa Cruz Islands: the Fiji Islands and the Tonga, moa, Ellice, Gilbert, Marshall, Phoenix and Tokelau Islands.** 7th ed. **1943.** 523 p. **Vol. III. e eastern groups including the Archipel Tubuai, the Cook Islands, and Iles de la Société; Archipel s Tuamotu; Iles Marquises; the Line Islands, and scattered islands near the equator; and the awaiian Islands.** 7th ed. **1946.** 269 p. figs., tables, refs., photos, fold. charts. **DN-HO**—l. I (p. 7–13), Vol. II (p. 17–42) and Vol. III (p. 31–62) comprise general descriptive comments the pressure patterns, cyclonic disturbances, seasonal and local wind variation and fog and sibility for the entire geographical region in question and more detailed summaries of local weather nditions on the various islands with special emphasis on coastal effects on weather. Tables give onthly mean values of meteorological elements at various island stations based on from 2 to 46 ars of data. Supplement No. 9, 1944, (92 p.) to Vol. I contains on p. 8 a revised section on tropical volving storms and practical rules for avoiding them. *Subject Headings:* **1. Pilot guides 2. Pacific lands 3. Equatorial Pacific 4. South Pacific.**

4I–174 551.46:016

†Grier, Mary C. (*comp.*), **References on the physical oceanography of the western Pacific Ocean.** *S. Hydrographic Office, Publication*, No. 238, **1946.** 74 p. 1227 refs. **DLC**—Second publication bibliographic material compiled during World War II by Navy Hydrographic Office and reflecting e geographical limits of the war in the Pacific. Of 1227 references in many languages, about ⅓ are iefly annotated. Reference made to recent editions of sailing directions, pilots, tide tables, and art catalogs. Indexes of subjects, geographic names and expeditions included. *Subject Headings:* **Oceanographic bibliographies 2. West Pacific.**

4I–175 551.515.2(265)

Kidd, Kenneth P. and Reed, Charles K., **Typhoons of the southwest Pacific—1945.** *American eteorological Society, Bulletin*, 27(6):288–305, June **1946.** 7 figs., 3 tables, 10 refs. **DWB**—A mposite picture of storms and typhoons west of 165°E and north of equator, April–Dec. 1945, a ief discussion of general characteristics of formation, development and movement of these tropical clones, and presentation of tentative rules for forecasting typhoon movement. *Subject Headings:* **Typhoons 2. Typhoon forecasting 3. West Pacific.**

4I–176 551.583(266.5)

Pokrovskaia, T. V., **Poteplenie klimata na severe Tikhogo Okeana.** [The warming up of the mate in the North Pacific Ocean.] *Meteorologiia i Gidrologiia*, Moscow, No. 5:88–95, **1946.** figs., 17 refs. **DLC.** Translation by Elizabeth Heiden available in manuscript.—Study of the nited mean temperature, water circulation, ice and precipitation data available indicates a warming in all seasons of the same order (2° in winter, 1–1.5° in other seasons and for the year) as that bserved in the high latitudes of the Atlantic. *Subject Headings:* **1. Climatic changes 2. Warming Arctic 3. North Pacific. I. Heiden, E.** (*trans.*).

4I–177 551.555.1(265/6)

Shtokman, V. B., **A tentative indirect determination of the velocities of the trade winds in the quatorial part of the Pacific.** *Akademiia Nauk, SSSR, Comptes, Rendus*, 53(6):515–518, **1946.** ., refs., eqs. In English. **DLC**—Because of lack of meteorological observations in great areas Pacific to provide data showing interrelation of fields of mass and velocity in atmosphere and ean, the author favors indirect mathematical method (demonstrated in article) of determining evailing non-uniformity of the trade wind velocity. *Subject Headings:* **1. Trade winds 2. Equarial Pacific.**

4I–178 551.506.5(266)

*Sverdrup, Harald U., **Oceanographic observations on the "E. W. Scripps" cruises of 1938–1941.** *alifornia. University. Scripps Institution of Oceanography, Contributions, New Ser.*, Nos. 165, 5, 225, 345, **1942–1946.** 4 v. figs., tables, diagrs. **DLC**—Excellent source of temperature, linity, wind, current and chemical content data collected by the Scripps Institution of Ocean-

ography during 1938–1941 on oceanographic cruises off S. California coast. *Subject Headings* **1. "E. W. Scripps" expeditions, 1938–1941 2. Oceanographic data 3. Northeast Pacific.**

1947

4I–179 551.506.3 551.582.

*Clayton, Henry Helm (*ed.*), **World weather records.** *Smithsonian Miscellaneous Collections* vs. 79, 90, 105, 1927–1947. 3 v. Title varies. **DWB**—Mean monthly pressure and precipitation data for North and South Pacific from beginning of record to 1940. *Subject Headings:* **1. Marine climatic data 2. Pacific Islands 3. North Pacific 4. South Pacific. I. Exner, Felix II. Walker Gilbert III. Simpson, G. C. IV. Mossman, Robert C.**

4I–180 551.594.6(96

Ellyett, C. D., **Echoes at D-heights with special reference to the Pacific Islands.** *Terrestrial Magnetism and Atmospheric Electricity*, 52(1):1–13, March **1947.** 3 figs., 2 tables. **DLC**—Radio echo observations (1302) from a height of 50 km above Pitcairn Island—taken between Oct. 1, 1944 and Nov. 16, 1945. Occurrence during 65% of all daytime observations though night occurrence not excluded. Both summer and winter minimum of activity. Similar echoes at Raoul Island and Christmas (June 11–30, 1945). It is concluded that the echoes may be characteristic of a tropical region. (*Same item as* 1–174, Jan. 1950, *MAB.*) *Subject Headings:* **1. Sferics 2. Pacific Islands**

4I–181 551.581(02

†§Garbell, Maurice Adolph, **Tropical and equatorial meteorology.** New York, Pitman Publishing Corp., **1947.** 237 p. figs., tables, bibliog. p. 223–228. **DLC**—In Pt. I, basic theories and empirical knowledge of meteorology are amplified and extended for application to low latitude weather (30°S–30°N). Pt. II devoted to weather analysis in the five major low latitude regions including the "Pacific space," p. 128–169. *Subject Headings:* **1. Tropical meteorology 2. Equatorial Pacific.**

4I–182 551.575:551.509.

Leipper, Dale F., **Sea surface temperature variation influencing fog formation in southern California.** *California, University. Scripps Institution of Oceanography, Oceanographic Reports* No. 9, Sept. 11, **1947.** 24 p. 11 figs., 2 tables. **DLC**—While, in general, the same sea surface temperature patterns appear each year there are differences due to oceanographic, meteorological and radiational factors. At La Jolla, the average sea surface temperature in Aug. 1931 was 23.3°C in Aug. 1932, 18.7°C. Variations are large enough that they should be observed and taken into account in fog forecasting. (*Same item as* 3F–101, June 1952, *MAB.*) *Subject Headings:* **1. Sea surface temperatures 2. Fog forecasting 3. Marine influences 4. La Jolla, California.**

1948

4I–183 550.342:551.515.2

Gilmore, M. H. and Hubert, W. E., **Microseisms and Pacific typhoons.** *Seismic Society of America, Bulletin*, 38(3):195–228, July **1948.** 12 figs., 11 tables, refs. **DLC**—Description of the development of the Pacific Microseismic Project into a new and valuable aerological tool which will greatly aid in the saving of life and property. It is now possible to locate accurately the position of a typhoon by the Sismo method when it is more than 1000 miles from the Tripartite Microseismic Station at Guam. *Subject Headings:* **1. Seismic storm detection 2. Typhoons 3. Northwest Pacific.**—*Author's abstract.*

4I–184 551.589(969

Leopold, Luna B., **Diurnal weather patterns on Oahu and Lanai, Hawaii.** *Pacific Science* Honolulu, 2(2):81–95, April **1948.** 7 figs., 3 tables, refs. **DLC**—Diurnal rainfall patterns and convective shower activity to leeward of areas of orographic lifting, diurnal height change of subsidence temperature inversion, and diurnal changes in surface wind speed and winds aloft in relation to height of inversion discussed. *Subject Headings:* **1. Orographic rainfall 2. Oahu, Hawaiian Islands 3. Lanai, Hawaiian Islands 4. Central North Pacific.**

4I–185 551.582.3:656.6(265/6

U. S. Hydrographic Office, **Pilot charts of the South Pacific.** Wash., D. C., U. S. Hydrographic Office, Sept. **1909**–Nov. **1948.** All charts. **DWB**—Quarterly mean charts show wind roses for 5° squares, currents, isobars and isotherms, magnetic deviations and ship routes for Pacific 120°E–80°W and 10°N–75°S. *Subject Headings:* **1. Marine climatic charts 2. Pilot guides 3. South Pacific.**

4I–186 551.577.3:551.513

*Yeh, Tu-chang; Carson, J. E.; Marciano, J. J. and Wallen, C. C., **A study of Oahu rainfall and relation to the general circulation of the atmosphere** Chicago, University, Dept. of Meteorology, e **1948.** 82 leaves. 23 figs., 13 tables, 22 refs. Mimeo. **DWB**—An elaborate study of the tion between flow patterns and rainfall over the Hawaiian Islands, for the benefit of the Pineapple earch Institute, based on a detailed analysis of Oahu rainfall records. Daily weather maps were ed or classified and the frequency of flow patterns determined. These were correlated with daily fall amount, probability, intensity and with anticyclonic or cyclonic rainfall. Cases of storms of drought were also analyzed. Relation to wind direction and orography also studied. Pt. II sists of a study of relation to maximum westerlies (jet stream) at 700 mb and Pt. III of relation ween trade inversion and rainfall over Oahu, based on convection instability concept. (*Same as* 2.9–135, Sept. 1951, *MAB.*) *Subject Headings:* **1. Precipitation controls 2. Atmospheric ulation 3. Climate of Hawaiian Islands 4. Hawaiian Islands, Central North Pacific.**—*M.R.*

1949

4I–187 551.509.33:633.18:551.588.1(52)

Hanzawa, Masao, **Oceanographical considerations in the bad rice crop in the Tohoku District Japan (synthetic review).** *Oceanographical Magazine,* Tokyo, 1(4):194–203, Dec. **1949.** 2 figs., refs. In English. **MH-BH**—The Tohoku District in northern Honshu is the chief agricultural a of Japan, but is so near the northern edge of possible rice growth that bad years (Kyosaku) ur very often as a result of cool summers (Kyorei). Attempts have been made since 1908 to cast these cool summers in advance, on the basis of oceanographic or meteorological factors riodicity, solar radiation, ocean temperature, ice from Bering Sea, etc.). Bad years of 1902, 5, 1913, 1931 and 1934 are analyzed and conclusion is that dust from vocanic eruptions is cause. *me item as* 2.5–41, May 1951, *MAB.*) *Subject Headings:* **1. Marine meteorology 2. Long range ecasting 3. Agronomy 4. Marine influences 5. Volcanic dust 6. Japan.**—*M.R.*

4I–188 551.555:551.576(969)

Leopold, L. B., **The interaction of trade wind and sea breeze, Hawaii.** *Journal of Meteorology,*):312–320, Oct. **1949.** 9 figs., table, 6 refs. **DWB**—The effect on the prevailing winds and clouds he mountain barriers on the various islands of the Hawaiian chain, and complications due to d-sea breeze circulation, are discussed in detail with many diagrams illustrating local effects on ud, wind and precipitation. It is concluded that air flows over the low mountains, but higher ges "split the trades," or cause the air to flow around them. (*Same item* 2–127, Feb. 1951, *MAB.*) *ject Headings:* **1. Trade winds 2. Cloud systems 3. Orographic effects 4. Hawaiian Islands, ntral North Pacific.**

4I–189 551.582(969)

Leopold, Luna B. and Stidd, C. K., **A review of concepts in Hawaiian climatology.** *Pacific ence,* Honolulu, 3(3):215–225, July **1949.** refs. **DLC**—Summary of knowledge to date (1949) Hawaiian climate including discussion of storm types and problems in their analysis, monthly annual variations in rainfall, winds, climate in relation to crops and vegetation, and basic data ilable. *Subject Headings:* **1. Climate of Hawaiian Islands 2. Hawaiian Islands, Central North ific.**

4I–190 551.556:551.465(967)

Miller, Robert L., **Wave and weather correlation at Apra Harbor, Guam, M. I., from 18 March 1 May, 1949.** California. University. Scripps Institution of Oceanography, Contract N6ori-, Task VI, Wave Report No. 90, Dec. **1949.** 9 p. 5 figs., 5 refs. **DWB**—Analyses of wave a from recorders at Apra Harbor, Guam, examined with reference to meteorological conditions r the North Pacific. Study of frequency analyses indicates approximate location of storm area be computed from low, long period swell observed at a distant point. MUNK's (1947) storm cking technique is applied to one storm. Significant increase in height of swell at Guam can be cast 48 hours in advance. *Subject Headings:* **1. Wind wave forecasting 2. Storms at sea Guam, Northwest Pacific. I. California. University. Scripps Institution of Oceanography Contract N6ori-111.**

4I–191 551.509.2(96)

*New Zealand. Meteorological Service, **Daily weather bulletin. Pacific Islands Section.** . 1949–. all tables. **DWB**—Daily coded surface synoptic, upper wind, upper air temperature, and aircraft observations. *Subject Headings:* **1. Daily weather bulletins 2. Pacific Islands 3. ific Ocean.**

4I–192 551.46(0

Oceanographical Magazine. Japan. Central Meteorological Observatory, Tokyo. v. No. 1, March 1949–. figs., tables, refs., eqs. Quarterly. **DWB**—A new quarterly publicatio published by the Oceanographical Section of the Central Meteorological Observatory as a companio volume to the *Geophysical Magazine.* Contains papers, short notes and abstracts in English o various phases of oceanography and marine meteorology, many dealing with the Pacific Ocean ar many purely theoretical. *Subject Headings:* **1. Periodicals 2. Oceanography 3. Pacific Ocea I. Japan. Central Meteorological Observatory, Tokyo.**

4I–193 551.577.2(969) 551.509.54:6

Riehl, Herbert, **Some aspects of Hawaii rainfall.** *American Meteorological Society Bulleti* 30(5):176–187, May **1949.** 17 figs., 4 tables, 10 refs., 2 eqs. **MH-BH**—Effective rainfall in sug and pineapple districts is defined as daily rainfall exceeding 0.10 in; it was studied at 21 stations ov a relatively small area during 1937–47. Seasonal and annual distribution charted. (For full abstract *see item* 2.5–144, May 1951, *MAB.*) *Subject Headings:* **1. Precipitation 2. Agricultur meteorology 3. Climate of Hawaiian Islands 4. Hawaiian Islands, Central North Pacific.**— *C.E.P.B.*

4I–194 551.509.3:551.515(265.

§Suraud, P., **La prévision dans le Pacifique Sud.** [Forecasting in the South Pacific.] *I Météorologie,* 4th Ser., 14:84–90, April/June **1949.** 6 figs. French and English summaries p. 8 **DWB**—Discussion and illustration of typical synoptic situations and different seasons, and th associated weather; movements of air masses, monsoon and trade wind regimes, tropical cyclon and frontal storms in the vicinity of Australia, with a note on forecasting in the Indian Ocea (*Same item as* 4–29, April 1950, *MAB.*) *Subject Headings:* **1. Weather forecasting 2. Cyclon 3. South Pacific.**—*M.R.*

4I–195 551.582(266.

*U. S. Weather Bureau, **Meteorological and climatological data: Weather on the North Atlant Ocean; Weather on the North Pacific Ocean.** *Monthly Weather Review,* 43(1), **1915** to 77(12), **194** tables. **DWB**—From 1915 to 1949 notes and data on atmospheric pressure, severe storms, fog an other meteorological elements were included in the section of the *Monthly Weather Review* devote to meteorological and climatological data. Starting with Jan. 1950 the monthly climatological dat tables were issued separately in "Climatological data, national summary," a new Weather Burea publication. *Subject Headings:* **1. Marine meteorology 2. Marine climatology 3. North Atlant 4. North Pacific. I. Tannehill, I. R. II. Hunter, H. C. III. Hurd, Willis E.**

4I–196 551.555.1(96

Wentworth, Chester K., **Directional shift of trade winds at Honolulu.** *Pacific Science,* Honolul 3(1):86–88, Jan. **1949.** 2 figs. **DLC**—Discussion and charts show definite, rather smooth, cyclic swing of trade winds from northeast toward east between 1905 and 1947. Cycle expected to reac completion between 1950 and 1960. *Subject Headings:* **1. Trade winds 2. Honolulu, Hawaii Islands.**

1950

4I–197 551.591.2(26

Arakawa, H., **On the visibility in the NW-PACIFIC.** *Papers in Meteorology and Geophysic* Tokyo, 1(1):58–66, Oct. **1950.** 8 figs. In English. **MH-BH**—The charts show for area N 15°S and W of 175°E, for each season, percentage frequencies of excellent visibility (horizon clea and poor (horizon quite invisible), based on Japanese Navy data. Cause of frequent summer fo in the north briefly discussed. (*Same item as* 2.9–168, Sept. 1951, *MAB.*) *Subject Heading* **1. Visibility 2. Fog 3. Northwest Pacific.**—*C.E.P.B.*

4I–198 551.556:551.46

§Arthur, Robert S., **Wave and weather correlation at Apra Harbor, Guam, M. I., from 1 June t 30 November, 1949.** California. University. Scripps Institution of Oceanography, Contra N6ori-111, Task VI, Wave Report No. 96, **1950.** 6 leaves. 3 figs., 3 refs. *California. Universit Scripps Institution of Oceanography, Technical Report,* June 6, **1950. DPL**—Five situations we studied, three of which involved wind waves or swell from typhoons, and two involved cyclone more than 1000 miles from Guam. The computed build up and decrease in wave heights agree wit observations. More wind data are needed from typhoon areas, however, if heights of damagi waves are to be forecast accurately. When waves reach Guam with little or no decay from typhoo areas, the periods are much longer than forecast. (*Same item as* 11–107, Nov. 1950, *MAB.*) *Subje Headings:* **1. Storms at sea 2. Wind wave forecasting 3. Guam, Northwest Pacific. I. Contra N6ori-111 II. California. University. Scripps Institute of Oceanography.**—*M.R.*

4I–199 551.557:629.13(265.5)

Croxton, J. H., **Notes on weather conditions over the Southern Hemisphere portion of the stralia–New Zealand–South America International air route.** New Zealand, Meteorological Service, Dec. 19, 50. 13 p. **DN-HO**—Description of prevailing wind patterns for surface–5000 ft, 5000–15,000 and 15,000–20,000 ft derived from surface, 700 mb and 500 mb pressure and streamline charts portions of the air route—(1) Sydney–lat. 25°S; (2) lat. 25°S–15°S; (3) lat. 15°S–lat. 5°S; and lat. 5°S–Canton Island. *Subject Headings:* **1. Aeronautical meteorology 2. Winds at sea South Pacific.**

4I–200 551.506.1(962)

*France. Établissements Français de l'Océanie, Service Météorologique, **Resumé des observa-ns faites en 1948.** [Summary of observations made in 1948.] Papeete, Tahiti, **1950.** 25+ ves. 1 map, tables. **MH-BH**—Monthly and annual (1948) data for 8 stations in French eania, including detailed data for the Central Observatory in Tahiti; a list of 18 papers published the service between 1934 and 1943; summary of weather for each month; means of various ele-nts observed for 1935–1948; map of region of Island of Tahiti, and also one showing location of tions; frequency of various elements (rainfall, clouds, hail, thunderstorms, visibility, winds at the face and winds aloft). (*Same item as* 2.6–121, June 1951, *MAB.*) *Subject Headings:* **1. Climatic ta 2. Climate of Tahiti 3. Tahiti, Central South Pacific.**—*M.R.*

4I–201 551.552(266)

Freeman, J. C., Jr., **The wind field of the Equatorial East Pacific as a Prandtl-Meyer expansion.** *nerican Meteorological Society, Bulletin,* 31(8):303–304, Oct. **1950.** 2 figs., 4 refs. **MH-BH**—nd field off west coast of South America was computed from a theoretical model with a bend nilar to that in South America near the equator, using Prandtl-Meyer expansion and assuming a nstant inversion of .65°C/km and ΔT—1°C. Results were similar to actual Oct. resultant winds er 5° squares as shown in "Climatic Charts of the Oceans," U. S. Weather Bureau, 1938. (*Same n as* 2.3–109, March 1951, *MAB.*) *Subject Headings:* **1. Wind fields 2. Prandtl-Meyer ex-nsion 3. Topographic effects 4. East Equatorial Pacific 5. South America.**—*M.R.*

4I–202 551.582:656.6

*Great Britain. Hydrographic Office, **Eastern Archipelago pilot, Vol. I. Comprising the ilippines (with the exception of the western coasts of Luzon and Palawan) Sulu Sea, Sulu Archi-lago and the north-east coast of Borneo.** 6th ed. **1950.** 702 p. **Vol. II. Comprising the south-stern end of Sumatra, Sunda Strait, Java, islands eastward of Java, southern and eastern coasts Borneo, Macassar Strait, Celebes, and the western part of the Soela Eilanden.** 6th ed. **1949.** 2 p. figs., photos, fold. charts, refs., tables. **Vol. III. Including the north-eastern end of Celebes, olucca, Ceram, Banda and Arafura seas, and the western end and southern coast of Netherlands w Guinea.** 4th ed. **1943.** 282 p. **Vol. IV. Comprising the western end of Java, the southern d eastern coasts of Sumatra, Straat Soenda, Straat Banka, Gaspar Strait, Straat Karimata, the stern coast of Borneo from Tanjong Sambar to the entrance of the Kleine Kopoeas River, the ouw and Lingga Archipel, with the various routes leading to Singapore and the China Sea.** 2nd **1939.** 252 p. **DN-HO**—Each volume contains introductory comments on general meteorology th emphasis on tropical storms and how to avoid them, modification of weather near the coast and ecasting sea fog. Sections on climate and weather in Chap. I of each volume comprise descrip-ns of weather by island or island groups followed by tables of monthly mean pressure, tem-rature, precipitation, rain and wind data at various island stations. *Subject Headings:* **1. Pilot ides 2. Pacific Islands 3. West Pacific.**

4I–203 551.582.3(266)

*Great Britain, Meteorological Office, **Monthly meteorological charts of the Eastern Pacific ean.** Great Britain, Meteorological Office, Marine Branch, **1950.** 122 p. 320 charts. M.O. 3 (formerly M.O.M. 446). **MH-BH**—Charts of area 60°N to 60°S, 160°W to coast of America. cludes for each months charts of resultant winds or vector means, barometric pressure and resultant nds, frequency of winds of gale force (Beaufort 7 or higher), predominant direction, constancy and ce of surface winds, wind roses for each 5° square. Frequency, amount and direction of swell vell roses). Percentage frequency of fog, fog mist and haze, snow, precipitation, lightning. ean cloud amount and percentage frequency of clear, fair and cloudy or overcast skies. Mean ximum, minimum and range of air and sea temperature and difference air-sea, typical tracks of pical cyclones. Introduction includes tables of diurnal variation of barometric pressure in 10° nes, 20°N–20°S. (*Same item as* 9–137, Sept. 1950, *MAB.*) *Subject Headings:* **1. Climatic charts East Pacific.**—*C.E.P.B.*

4I–204 551.573(266.

Hanzawa, Masao, **On the annual variation of evaporation from the sea surface in the Nort Pacific Ocean.** *Oceanographical Magazine*, Tokyo, 2(2):77–82, June **1950.** 3 figs., table, 5 refs eqs. **MH-BH**—Computations using SVERDRUP and JACOB's formulas show maximum Nort Pacific evaporation occurring in fall and winter and minimum in early summer. Results compare with WÜST's and others (table 1). Relation between evaporation and chlorinity of sea discussed *Subject Headings:* **1. Energy exchange sea-atmosphere 2. Evaporation from seas 3. North Pacifi**

4I–205 551.515.8:551.526.

Hanzawa, Masao and Takeda, Nobuo, **Preliminary report on the transformation of the Siberia Pc airmass travelling over sea in winter.** *Oceanographical Magazine*, Tokyo, 2(2):69–75, 195(7 figs., 3 eqs., 12 refs. **MH-BH**—Changes in mixing ratios, and coefficients of eddy diffusivit occurring in Pc air masses following typical trajectories (determined by PETTERSSEN's method bu using actual winds on the sea surface) from Hokkaido to the North Pacific are most marked near th sea surface over warm water. (*Same item as* 3.8–92, Aug. 1952, *MAB.*) *Subject Headings:* **1. Ai mass modification 2. Marine meteorology 3. Polar continental air masses 4. North Pacific.**

4I–206 551.515.2:551.46(794

Horrer, Paul L., **Southern Hemisphere swell and waves from a tropical storm at Long Beach California.** *U. S. Army Corps of Engineers. Beach Erosion Board, Bulletin*, 4(3):1–18, July **195(** 9 figs., table, 5 refs. **DGS**—The meteorological conditions producing wave action which destroyed or damaged breakwaters in the Long Beach area in 1930 and 1939 are analyzed and presented. Wave heights of 15 and 18 ft were measured by U. S. Engineers and 32 to 39 ft by U. S. Navy Ob servers in the Aircraft Carrier "Lexington" during the Sept. 1939 storm. The conclusion is tha such conditions occur so rarely that it would be cheaper to reconstruct breakwaters after destructio each time, than to build structures that would withstand the swells from tropical storms. (*Sam item as* 2.7–83, July 1951, *MAB.*) *Subject Headings:* **1. Wave damage 2. Tropical cyclone 3. Wave heights 4. Long Beach, Cal.**—*M.R.*

4I–207 551.577:551.573:551.4

Jacobs, Woodrow C., **The distribution and some effects of the seasonal quantities of E-I (evaporation minus precipitation) over the North Atlantic and North Pacific.** *Archiv für Meteorologie Geophysik und Bioklimatologie, Ser. A*, 2(1):1–16, **1950.** 6 figs., 2 tables, 10 refs., eq. English German and French summaries p. 1–3. **DWB, MH-BH**—Charts of the sum total of seasona evaporation minus precipitation, for the Northern Hemisphere oceans, compiled on the basis o previously computed seasonal evaporation and precipitation, are presented. Quantitative data ar given for different areas and seasons both in terms of totals of E, P and E-P, and in terms of cm o excess or deficiency at a point or over an area. Values are computed for 10° squares. Salinit balance, computed from the E-P values for North Atlantic and North Pacific, are shown graphically (For fuller abstract *see item* 5–82, May 1950, *MAB.*) *Subject Headings:* **1. Hydrologic cycl 2. Evaporation from seas 3. Precipitation at sea 4. Salinity 5. North Pacific 6. North Atlantic** —*M.R.*

4I–208 551.587(749

Loewe, F. and Radok, U., **Some amendments to "A meridional aerological cross section in th southwest Pacific."** *Journal of Meteorology*, 7(4):305–306, Aug. **1950.** table, 2 refs. **MH-BH**— Revision of charts in author's article (*see item* 5–101, May 1950, *MAB*) based on 2 years of radiosond data from Macquarie Island, and results of 35 flights made during the French Antarctic Expeditio to Adélie Land, plus a summer's flights made at Hobart, Tasmania, showing higher tropopause i winter than in summer at Macquarie Island. New temperature and height averages are presented (*Same item as* 2.2–151, Feb. 1951, *MAB.*) *Subject Headings:* **1. Upper air climatology 2. Southwes Pacific 3. Antarctica.**—*M.R.*

4I–209 551.582(265)(267

Maher, J. V. and Riley, P., **Weather in Australian waters.** *Marine Observer*, 20(148):105–11 April **1950.** 6 figs., ref. **DWB**—General description of winter and summer weather, tropical cy clones, willy-willies and Cocos Island cyclones, and weather service to shipping. Cyclone tracks barograms and mean air temperature January to July included. (*Same item as* 4D–215, April 195 *MAB.*) *Subject Headings:* **1. Marine climatology 2. Southwest Pacific 3. Indian Ocean.**

4I–210 551.557.36(961.

*Moir, R. W., **A brief note on the upper winds at 30,000 ft over Nandi, Fiji.** *New Zealan Meteorological Office, Circular Note*, No. 59, **1950.** 2 p. 5 tables. **DWB**—Summary of winds a 30,000 ft based on pilot balloon observations between May 1941 and Dec. 1949 combined wit radiosonde ascents made during 1945 and from May 1948 onwards. Frequency tables for eac

ason and monthly maximum wind velocities given. (*Same item as* 4E–196, May 1953, *MAB.*) *ubject Headings:* **1. Upper air wind frequencies 2. Nandi, Fiji Islands, Southwest Pacific.**—*G.J.E.*

4I–211 551.555.1:551.513.2(265)

*§Riehl, Herbert, Yeh, T., Malkus, Joanne Starr, and La Seur, Noel E., **The northeast trade of ıe Pacific Ocean.** Chicago, University, Dept. of Meteorology, Nov. **1950.** 24+leaves. 24 figs., tables, 30 refs., 18 eqs. **MH-BH**—Main contributions to our knowledge of energy exchange etween oceans and atmosphere and between the tropics and the polar regions reviewed. Specific ata for a section of the North Pacific (northeast of Hawaii) collected and analyzed by means of nergy diagrams and cross sections (from sea surface to 3 km). It is shown that downward transfer f mass takes place through the trade inversion. Calculations of energy balance show that there a new transport of latent heat upward and away from the area. Momentum and moisture balance re calculated and discussed. (*Same item as* 2.4–113, April 1951, *MAB.*) *Subject Headings:* **. Energy exchange sea-atmosphere 2. Atmospheric circulation 3. Trade winds 4. Energy ransport 5. Northeast Pacific.**—*M.R.*

4I–212 551.577.2/3(265.5)

Seelye, C. J. (*Victoria Univ. College, Wellington*), **Rainfall and its variability over the central nd southwestern Pacific.** *New Zealand Journal of Science and Technology, Sect. B,* 32(2):11–24, ept. **1950.** 10 figs., 8 refs., 5 tables. Abstracted from reprint. **DWB**—Discussion centered on aps conveying: average annual rainfall and its percentage variability, months of greatest and ast average rainfall, frequency of wet months with over 150% of average rainfall and of dry months ith under 50% of average, the last being treated seasonally as well as annually. Notes made oncerning surface winds in exceptional rainfall years, on the persistence of dry months and selected eriods of abnormal rainfall. Equatorial dry zone with its southeastern extension figures promiently throughout as a homogeneous region. This emphasizes the anomaly that unmodified T_m ir reaches the equator in the region without showing a transition to an Em air mass as would be ustomary elsewhere. *Subject Headings:* **1. Rainfall variations 2. Rainfall 3. Southwest Pacific.** —*Author's abstract.*

4I–213 551.515.2(969)

Simpson, R. H., **Hiki-Hawaii's first hurricane of record.** *Weatherwise,* 3(6):127–128, Dec. **950. MH-BH**—Path of phenomenal hurricane of August 13–30, 1950 shown on chart. Storm as stalled in the vicinity of Hawaiian Islands from Aug. 15–18, then moved WNW. Eye of storm enetrated twice—found to be 20–25 miles in diameter. Winds reached 90+ m.p.h. (*Same item as* 4–85, April 1951, *MAB.*) *Subject Headings:* **1. Hurricanes 2. Hawaiian Islands 3. Central Iorth Pacific.**—*M.R.*

4I–214 551.510.42:551.593.54

Simpson, R. H., **A phenomenal haze in the Pacific.** *Weatherwise,* 3(4):83–84, Aug. **1950.** hoto. **MH-BH**—Account of synoptic weather conditions and analyses of air composition made uring the period of unusually low visibility at Honolulu, Midway, Wake, Guam, Johnston Island, tc. (June 8–14, 1950). Believed to be due to salt and ash particles resulting from eruption of Iauna Loa about the first of June. (*Same item as* 2.2–43, Feb. 1951, *MAB.*) *Subject Headings:* **. Haze 2. Volcanic dust 3. Mauna Loa, Hawaiian Islands 4. North Pacific.**—*M.R.*

4I–215 551.515.7:551.509.33

Tajima, S., **On the structure of subtropical anticyclones in East Asia and in the North Pacific Ocean.** *Journal of Meteorological Research, Tokyo,* 2(6):164–168, July **1950.** 6 figs., 2 tables, refs. In Japanese, English summary p. 41. **MH-BH**—From frequency distribution in latitude peaks 28–29 and 32–34°N) anticyclone is regarded as made of two highs, one of subtropical, the ther of mid-latitude origin; this is supported by sea temperature and upper air data. Of interest o forecasting summer in Japan. (*Same item as* 2.2–78, Feb. 1951, *MAB.*) *Subject Headings:* **. Anticyclones 2. Long range forecasting 3. East Asia 4. North Pacific.**—*C.E.P.B.*

4I–216 551.582:656.6

*U. S. Coast and Geodetic Survey, **United States Coast Pilot, Hawaiian Islands.** 3rd (1950) ed. *7. S. Coast and Geodetic Survey, Serial,* No. 735, Jan. 1, **1950.** 243 p. figs., tables, appends. **DWB** —Pages 42–62 include general discussion of weather and climate of the islands and closely surrounding cean areas. Charts show Jan., April, July and Oct. mean isolines of sea level pressure, air and ater surface temperatures for North Pacific Ocean. Monthly meteorological data for Hawaiian slands, French Frigate Shoals, Midway Island, Johnston Island, Palmyra Island and 36 selected cean areas between 5–35°N and 150–185°W appended (p. 187–233). *Subject Headings:* **1. Climate f Hawaiian Islands 2. Pilot guides 3. Hawaiian Islands, Central North Pacific.**

4I–217 551.582:656

*U. S. Hydrographic Office, **Pilot charts for the North Pacific. Monthly means for October an November.** U. S. Hydrographic Office, **1894–1950.** All charts. **DWB**—Monthly charts sho North Pacific, 5°S–75°N, 115°E–80°W and include ice limits in Okhotsk and Bering Seas. Back of charts contain extensive wind and temperature data and well illustrated articles on such subject as sea fog, rescue work at sea, typhoons, etc. *Subject Headings:* **1. Marine climatic charts 2. Nort Pacific.**

4I–218 551.50

U. S. Treaties, etc. 1945–, Truman, **Weather stations Pacific Ocean Program. Agreemer between the United States of America and Canada, effected by an exchange of notes signed a Washington June 8 and 22, 1950, entered into force June 22, 1950.** U. S. Dept. of State. Publica tion 3963. Treaties and other International Acts Series, 2103. [1950?] 4 p. **DWB**—Co ordinates of locations of stations constituting Pacific network of ocean stations that are to be es tablished are given. (*Same item as* 3.9–28, Sept. 1952, *MAB.*) *Subject Headings:* **1. Meteorologica stations 2. Pacific Ocean.**—*I.L.D.*

4I–219 551.556:551.46:532.593(794

Wiegel, Robert L. and Kimberly, H. L., **Southern swell observed at Oceanside, California** *American Geophysical Union, Transactions*, 31(5), Pt. 1:717–722, Oct. **1950.** 4 figs., table, 9 refs **MH-BH**—Swell from S–SW on California coast, period 12–18 sec, up to heights of 8 ft was traced to area 40–65°S, 120–160°W. This is a place of maximum gale frequency in southern winter (*Same item as* 2.8–98, Aug. 1951, *MAB.*) *Subject Headings:* **1. Ocean wave measurement 2. Swel 3. Southern California 4. South Pacific.**—*C.E.P.B.*

1951

4I–220 551.515.7:551.555.6(728.866

§Alpert, Leo, **An atmospheric cross section over the tropical eastern Pacific during a stron norther, November 16, 1942.** *American Meteorological Society, Bulletin*, 32(3):97–101, March 1951 3 figs., 12 refs. **MH-BH**—On Nov. 9–16, 1942 a strong polar air mass moved down over Mexic and Central America (to the right of hurricane) reaching to within 5°N. of the equator. Detail of wind, cloud and air mass conditions are given, with a brief account of unusual features and pilots reports, especially for the intertropical convergence zone centered on the Galapagos Islands. (*Sam item as* 2.9–91, Sept. 1951, *MAB.*) *Subject Headings:* **1. Anticyclones 2. Northers 3. Centra America 4. Galapagos Islands 5. East Equatorial Pacific.**—*M.R.*

4I–221 551.506.1(961

*Apia. Observatory, **Magnetic and meteorological results for 1949.** Wellington, N. Z., Govt Printer, **1951.** 146 p. mostly tables. **DWB**—Title before 1948 "*Annual Report for. . . .*" The essential material is the same each year. The first part gives the results of magnetic observation carried out at the observatory under the direction of the Christchurch Geophysical Observatory Seismological and tidal observations were also made along with sea temperatures and density meas urements. The meteorological data collected under the supervision of the New Zealand Meteoro logical Dept. consists of the usual daily synoptic observational data plus sunshine, wind frequency upper winds (daily), vapor pressure. Rainfall data for Apia Observatory and for other stations i Samoa, and climatic data for Fakaoto, Nukunono and Atafu are presented. (*Same item as* 4.3–37 March 1953, *MAB.*) *Subject Headings:* **1. Annual meteorological reports 2. Magnetic observation 3. Upper air wind data 4. Climate of Samoan Islands 5. Samoan Islands 6. Central South Pacific** —*M.R.*

4I–222 551.515.8(266

*Arakawa, H. and Tsutsumi, K., **Seasonal changes of daily frequency of squalls in the NW Pacific.** *Papers in Meteorology and Geophysics*, Tokyo, 2(3/4):296–301, Dec. **1951.** 2 refs., charts fold. tables. **DLC**—Daily frequencies and seasonal means of squalls encountered in each 2.5 square of northwest Pacific charted and tabulated showing very high frequencies in equatorial belt *Subject Headings:* **1. Squalls 2. Marine meteorological data 3. Northwest Pacific 4. Equatoria Pacific.**

4I–223 551.5:629.13(265/6

*Australia. Meteorological Branch, **A report on meteorological conditions affecting aviatio over the Sydney to Vancouver air route.** [1951?] 99 p. 50 figs., tables, bibliog. p. 32. **DWB**— This study contains a summary of the weather, climate and flying conditions along the route fro Sydney–Suva–Canton Islands–Honolulu–San Francisco–Vancouver, British Columbia, the flyin

nditions at the principal airports, general controls of weather, typical synoptic situations (tropical clones, extra-tropical cyclones, V-depressions and anticyclonic ridges across various legs of the rway) and appendices giving upper winds, wind roses, temperatures and relative humidities; tables surface conditions at airports along the route and several not on the route; both mean conditions d frequencies as well as typical or sample situations are depicted in charts, diagrams and tables. *ame item as* 4D–230, April 1953, *MAB.*) *Subject Headings:* **1. Airways climatic data 2. Climatic mmaries 3. Tropical meteorology 4. Sydney–Vancouver air route 5. Pacific Ocean.**—*M.R.*

4I–224 551.506.7:551.557(265)

*California. University at Los Angeles. Institute of Geophysics, **The tropical Pacific Project.** ontract W28-099ac-385, 7th, 12th, 13th and 15th Reports, Jan. 1950, April, July and Dec. **1951.** s., charts, tables, refs. **DWB**—Report 7 contains a synoptic study of organized cloud lines in the cific near Bikini using data for summer of 1946. In Appendix A of the 12th report, the weather uation in the Marshall Islands on the 17th, 18th and 19th of June, 1946 is explained in terms of high level quasi-stationary cyclonic circulation, an equatorial wave and an asymptote associated th a large scale system" the singular points of which are many hundreds of miles distant from the arshall Islands. Data on wind observations from surface to 60,000 ft given for Wake, Eniwetok, kini, Kwajalein and Tarawa. Stream line fields at 1500 ft and 8000 ft, speed fields at 1500, 8000 d 20,000 ft, contour at 500 mb and surface pressure are analyzed. Appendix A of the 13th report mprises "upper wind data from the Bikini Area, June–July 1946, re-evaluated where possible from BAN-214 and corrected by method described in the Appendix." Wind levels selected are at 2000 intervals from surface to 20,000 ft. Above 20,000 ft, 5000 ft intervals are used up to 60,000 ft. ind direction reported in 10° intervals, speed at 5 knot or sometimes 1 knot intervals. *Subject eadings:* **1. Upper air wind data 2. Bikini atom bomb tests 3. Marshall Islands 4. Bikini Island West Equatorial Pacific. I. Palmer, C. E. II. Dean, Gordon A. III. Stopinski, O. IV. Miller, F. Sherman, Leon VI. Contract W28-099ac-385.**—*I.L.D.*

4I–225 551.577.2:551.555.1

Crowe, Percy Robert, **Wind and weather in the equatorial zone.** *Institute of British Geographers, ublication,* No. 17:23–76, **1951.** 15 figs., tables, 48 refs. Abstracted from reprint. **DLC**—The eanic "equatorial zone" covers the "doldrums," redefined as the areas in which less than 50% all winds blow from the predominant quadrant. A number of monthly rainfall dispersion diagrams iedian and quartiles) are given for coasts and islands in this zone, with annual variation of wind rsistence. These are discussed in relation to movements of Intertropical Convergence Zone, ade inversion and sea temperatures. The highly variable rainfall of the equatorial western Pacific especially considered. Appendices discuss correlation between wind strength and constancy, and mmarize mean monthly rainfalls for numerous stations. *Subject Headings:* **1. Doldrums 2. Trade nds 3. Rainfall distribution 4. Equatorial Pacific.**—*C.E.P.B.*

4I–226 551.506.1(05)

*French Oceania. Service Météorologique, **Bulletins météorologiques mensuels de l'année, 50, 1951.** Papeete, Tahiti, **1950, 1951.** 2 pieces, each about 24 p. Entirely tables. **DWB**—onthly atmospheric pressure, temperature, water vapor tension, relative humidity, precipitation, solation, cloudiness, wind, evaporation and visibility data for Tahiti (17°32′S; 149°35′W; 5m ititude), 1950 and 1951, tabulated. *Subject Headings:* **1. Monthly climatic data 2. Climate of hiti 3. Tahiti, Central South Pacific.**

4I–227 551.5(265/6)

Hanzawa, M., **On some interesting marine meteorological phenomena observed in and en ute to and from the Antarctic Ocean.** *Japan. Central Meteorological Observatory, Tokyo, Oceanraphic Reports,* 2(2):177–182, Dec. **1951.** 5 figs., 5 refs. **MH-BH**—Account given of meteorogical conditions near the "Intertropical front," observation of a very distinct cold front in the ntarctic Ocean, green sunset flash and partial solar eclipse in the Antarctic Ocean, meteorological nditions in and near a tropical cyclone off the coast of the Solomon Islands, and very dense sea fog d a fog bow in the southern Sea of Japan. *Subject Headings:* **1. Marine meteorological observaons 2. Pacific Ocean 3. Antarctic Ocean.**—*From author's abstract.*

4I–228 551.526.6:551.509

Hishida, Kozo, **Forecast of surface water temperature in the southwestern part of Japan Sea.** *pan. Central Meteorological Observatory, Tokyo, Oceanographical Reports,* 2(2):199–204, Dec. **51.** 2 figs., 3 tables, 5 refs. English summary, p. 204. **MH-BH**—A forecast system taking o consideration heat gain or loss due to meteorological conditions and the effect of the Tsushima rrent is introduced. Some applications made. *Subject Headings:* **1. Sea surface temperature Energy exchange sea-atmosphere 3. Sea of Japan.**—*From author's abstract.*

4I–229 551.582.3(26

Jameson, H., **Recent British marine meteorological and surface current atlases.** *Marin Observer*, 21(152):115–119, April **1951. DWB**—Accounts of monthly meteorological charts, prepared by Marine Branch of the Meteorological Office, of Atlantic, W and E Pacific and Indian Oceans Greenland and Barents Sea and current charts of various seas and oceans. Ends with a note of dat available in the Branch. (*Same item as* 2.10–159, Oct. 1951, *MAB.*) *Subject Headings:* **1. Marin meteorology 2. Marine atlases 3. Oceans.**—*C.E.P.B.*

4I–230 551.577.3:551.506.3(969

Landsberg, Helmut E., **Statistical investigations into the climatology of rainfall on Lahu (T. H.)** *Meteorological Monographs*, Boston 1(3):7–23, June **1951.** 11 figs., 8 tables, 8 refs. **MH-BH**— A carefully homogenized rainfall series for Honolulu is given (1874–1945). The stability of median is found higher than the stability of means. The frequency distribution and its asymetry is ex amined. In all cases of marked departures of rainfall from the normal the whole island is uniformly affected. The standard deviation is calculated and compared with the interannual variability. High correlations between the annual precipitation on the windward and lee shores are found. A few relationships of precipitation to pressure and synoptic pattern are given. (*Same item as* 4.2–201 Feb. 1953, *MAB.*) *Subject Headings:* **1. Rainfall variations 2. Climate of Hawaiian Island 3. Statistical analysis 4. Hawaiian Islands, Central North Pacific.**—*A.A.*

4I–231 551.515.23:629.1

Montague, Hal R., **Vulture George reconnaissance track.** *U. S. Air Force, 2 143D Weath Wing, Technical Bulletin*, 1(7):31–35, June **1951.** plates. **DWB**—The author presents an analysis of the Vulture George reconnaissance track which was flown from Guam in a north south direction and below the 500 mb level. Evidence on the formation of vortices obtained by the flight is dis cussed. (*Same item as* 4.2–127, Feb. 1953, *MAB.*) *Subject Headings:* **1. Tropical cyclones 2. At mospheric disturbances 3. Airplane weather reconnaissance 4. Guam 5. Northwest Pacific.**— *I.L.D.*

4I–232 551.515.7:551.513.2:551.589.1(266

Namias, Jerome, **The great Pacific anticyclone of winter 1949–50: A case study in the evolutio of climatic anomalies.** *Journal of Meteorology*, 8(4):251–261, Aug. **1951.** 26 figs., table, 11 refs **MH-BH**—Movements of the centers of action (Pacific anticyclone) based on 700 mb mean monthly charts during Dec. 1944 to March 1950 are shown graphically and the resulting anomalies of tem perature over the United States discussed and illustrated. The tracks of cyclones over the Pacific showed a progressively varying and anomalous tendency during this period when the Pacific anti cyclone cell migrated from near Hawaii to the Bering Sea and Yukon Valley. A tentative theor as to cause of persistance and motion of this cell, based on differential heating or variations in surface temperatures which are selfinduced, is proposed. (*Same item as* 3.9–108, Sept. 1952, *MAB Subject Headings:* **1. Climatic anomalies 2. Pacific anticyclones 3. Graphical presentation.**—*M.F*

4I–233 551.574.

Ohta, S., **On the contents of condensation nuclei and uncharged nuclei on the Pacific Ocea and the Japan Sea.** *American Meteorological Society, Bulletin*, 32(1):30–31, Jan. **1951.** 3 figs table. **MH-BH**—Observations made with an Aitken counter on a ship for a week in Aug. 194 in the Pacific Ocean near Japan (67 observations) and during May 1948 on the coast of Rebu Island in the Sea of Japan (115 observations) are compared. Values on the Pacific are smaller ever obtained on an ocean. No diurnal change found over ocean—some change (increase in mi day) over Sea of Japan. Sudden decrease attributed to change in air mass. No change note with change in wind speed. (*Same item as* 2.9–119, Sept. 1951, *MAB.*) *Subject Headings:* **1. Con densation nuclei 2. Saline nuclei 3. Sea of Japan 4. Northwest Pacific.**—*M.R.*

4I–234 551.4

Pacific oceanography. *Australian Journal of Science*, Sydney, 13(6):171–172, June 195 **DLC**—A brief summary of present and proposed oceanographic research in New Zealand and Japa is presented. *Subject Headings:* **1. Oceanographic research 2. New Zealand 3. Japan.**

4I–235 551.510.535:551.507.362:550.3

Singer, F. S., Maple, E. and Bowen, W. A., **Evidence for ionosphere currents from experimen near the geomagnetic equator.** *Journal of Geophysical Research*, 56(2):265, **1951.** 10 figs., 4 ref **MH-BH**—Results obtained from two aerobee rocket soundings made from a seaplane tender (Norto Sound) in March 1949, at 11°S and 89°W, about 1000 miles west of Huancayo, Peru. Instrumenta tion described and shown diagrammatically and in photograph. Calibration, flight history (t 345,000 ft altitude) and method of analysis described. Magnetic field vs. time shown in graph fo

th soundings, and compared with theoretical curve from inverse cube law. Departures from this indicate existence of a current layer in the atmosphere between 93 and 105 km. Surface data m world-wide observatories indicate some disturbances on sun or earth, but no unusual dis-bances. Authors claim results confirm dynamo theory of daily magnetic variations. (*Same n as* 3.11–106, Nov. 1952, *MAB.*) *Subject Headings:* **1. Ionospheric currents 2. Terrestrial gnetism 3. Rocket soundings 4. Magnetic storms 5. Aerobee rockets 6. Southeast Pacific.** *M.R.*

4I–236 551.515.227(266)

§Thompson, B. W., **The upper-level flow-structure near typhoons.** *Royal Meteorological Society, arterly Journal*, 77(332):272–282, April **1951.** 8 figs., 7 refs. **MH-BH**—Flow charts of southwest rth Pacific at 2000, 5000, 10,000 ft, preceding 19 typhoons, show that the initial small vortices d to develop at discontinuities between easterlies to N and westerlies to S. This occurs in the ertropical Convergence Zone in summer (8 cases) or in equatorial-North Pacific Trades dis-ntinuity (3 cases) but they may also form within North Pacific trades (7, but some of these probably gan at discontinuities) or North Indian westerlies (1). Analyzed 10,000 ft charts given of several mples. Divergence of N. Pacific trades to W and NW of center is a constant occurrence and rning. (*Same item as* 2.6–58, June 1951, *MAB.*) *Subject Headings:* **1. Typhoons 2. East cific.**—*C.E.P.B.*

4I–237 551.582:656.6

*U. S. Coast and Geodetic Survey, **United States Coast Pilot, Pacific Coast, California, Oregon, d Washington.** 7th (1951) ed. *U. S. Coast and Geodetic Survey, Serial*, No. 750, June 2, **1951.** 3 p.+figs., tables, appends. **DWB**—Pages 44–58 contain a discussion of pressure pattern and pressions, air and water surface temperatures, precipitation, fog, gales, local winds and tropical rms along Pacific Coast of United States as well as mean Jan., April, July and Oct. charts of sea el pressure and air and sea temperatures for whole Pacific. Meteorological tables appended (p. 5–551). *Subject Headings:* **1. Marine climatology 2. Pilot guides 3. Pacific coast, United States.**

4I–238 551.515.73:551.583.14

Yamamoto, Takeo, **On the secular change of the north Pacific high.** *Meteorological Society of pan, Journal*, 29(12):415–418, Dec. **1951.** 5 figs., 6 refs. **MH-BH**—Continuous observations of teorological conditions in Seoul, Korea, and Japan for over 200 years are used to investigate ular climatic changes under the influence of the North Pacific high. Climate of the Far East s a remarkable secular trend and well expressed variations. Tree rings (1300–1700 A.D.) show riods of about 125 years and precipitation data show an increase from the end of the 18th century the end of the 19th century. *Subject Headings:* **1. Climatic changes 2. Pacific High 3. Tree gs 4. Japan 5. Korea.**—*A.A.*

4I–239 551.577.21:551.513(969)

Yeh, T., Carson, J. E. and Marciano, J. J., **On the relation between the circumpolar westerly rrent and the rainfall over the Hawaiian Islands.** *Meteorological Monographs*, Boston, 1(3):47–55, ne **1951.** 13 figs., 8 refs. **MH-BH**—The frequency distribution of the position, maximum shear, d velocity of the jet stream over the western Pacific at 700 mb are studied. These factors are related with the Hawaiian rainfall. The rainfall increases with the latitude of the jet. It also reases with the amount of the anticyclonic shear south of the westerlies and decreases as the speed the jet increases. (*Same item as* 3.10–213, Oct. 1952, *MAB.*) *Subject Headings:* **1. Jet stream Rainfall 3. Hawaiian Islands, Central North Pacific.**—*Author's abstract.*

1952

4I–240 551.501.7:551.507.352(265/6)

Barney, William S., **Aerial weather reconnaissance in the Pacific.** *Pacific Science Congress, , New Zealand, 1949, Proceedings*, 3:9–21, **1952.** fig. **DWB**—Description of the personnel and truments required and the general procedure followed on weather wartime reconnaissance missions the Pacific. Special emphasis on typhoon tracking. Post-flight report of a mission which netrated the "eye" of a typhoon reproduced. *Subject Headings:* **1. Airplane weather reconnais-nce 2. Typhoons 3. Pacific Ocean.**

4I–241 551.589:37

Best, William, **Dynamic climatology as a training aid in the western North Pacific area.** *Pacific ience Congress, 7th, New Zealand, 1949, Proceedings*, 3:40–48, **1952.** 7 charts, refs. **DWB**—arts used for training new Air Force forecasters illustrate the main features of each of the seven sic weather types over east Asia and the Northwest Pacific. *Subject Headings:* **1. Dynamic matology 2. Weather types 3. Northwest Pacific 4. East Asia.**

4I–242 551.513.2(265/6

Buxton, E. Brewster, **Periods of abnormal westerly weather in the equatorial Pacific since 190(** Abstract in: *American Meteorological Society, Bulletin*, 33(3):128, March **1952.** Original unchecke **DWB**—The monsoonal westerlies of the Western Pacific have surged eastward in a narrow ban along the Equator several times since 1900, at times reaching as far as Canton Island. The la known case, Dec. 1940, is described and possible causes discussed. *Subject Headings:* **1. Monsoon westerlies 2. Climatic anomalies 3. Equatorial Pacific.**—*Author's abstract.*

4I–243 551.506.5:551.46

*California. University at Los Angeles. Dept. of Meteorology, **Meteorological observation from the cruises of the "Crest" and the "Horizon," summers of 1949 and 1950.** Contract N6on 27514, Project NR-082-065, Subtropical Pacific Meteorology Project, Technical Report, No. 1 Sept. 30, **1952.** 223 p. 8 figs., many tables. **DWB**—Report consists of description of observation (taken during extensive 1949–1950 oceanographic and meteorological investigations off west coas of the U. S. and Lower California), and how they were made, followed by presentation of the detaile observations. Data include surface air pressure, air and sea surface temperature and air moisture surface wind, waves, visibility, weather and clouds, winds aloft and radiosonde records. Observa tions limited to summer months. It is hoped that the data will shed light on the structure of th subtropical anticyclone and fill in gaps in the areal coverage of upper air climatological data. *Subjec Headings:* **1. Marine meteorological data 2. Oceanographic surveys 3. Northeast Pacific. I. Con tract N6onr-27514.**

4I–244 551.582(93

The climate of the world. 5. Australia and New Zealand. *Weather*, 7(9):279–282, Sept. **1952** diagrs. **DWB**—Diagrams of monthly temperature, pressure and rainfall at 18 places in Australia 6 in New Zealand, and Port Moresby (New Guinea), Tulagi (Solomon Is.) and Suva (Fiji). (*Same item as* 4.3–243, March 1953, *MAB.*) *Subject Headings:* **1. Local climates 2. Australasia 3. South east Pacific.**—*C.E.P.B.*

4I–245 551.576.2(265/6

Corton, Edward L., Jr., **Cloud distributions in oceanic areas with tropical monsoon climate.** Paper presented at the American Meteorological Society Meeting, Washington, 1952. Abstract in *American Meteorological Society, Bulletin*, 33(2):79, Feb. **1952.** Original unchecked. **MH-BH**— Data from the Indian and Pacific Oceans between 20°N and 20°S were tabulated for mean cloudiness observed percentage with 0 to 2 tenths cloud coverage, and percentage with 8 to 10 tenths cloudiness to find the form of the cloud distributions. Charts of these distributions are presented for the two oceans. Calculated variances are given, and the question of sample sizes is discussed. *Subjec Headings:* **1. Cloudiness at sea 2. Equatorial Pacific.**—*Author's abstract.*

4I–246 551.582(265.5

Gentilli, J., **Climatology of the central Pacific.** *Pacific Science Congress, 7th, New Zealand, 1949 Proceedings*, 3:92-100, **1952.** 7 maps, refs. **DWB**—Using rainfall data from SCHOTT (*see* 4I–7 above) and U. S. Weather Bureau (*see* 4I–110 above) and accounting for evaporation (as dependent on temperature) author constructs seasonal maps showing distribution of effective precipitation fo the Central Pacific, 10°–45°S, 155°E–130°W. Effect of "shearing front" on precipitation discussed *Subject Headings:* **1. Marine climatic charts 2. Rainfall distribution 3. Central Equatorial Pacific 4. Central South Pacific.**

4I–247 551.515.2:551.50

Gherzi, E., **Typhoon forecasting at the Zi-ka-wei Observatory.** *Pacific Science Congress, 7th New Zealand, 1949, Proceedings*, 3:34–36, **1952.** **DWB**—Author contends that tropical cyclones form out of convection instabilities which are driven westward by powerful displacements of the Pacific air mass and set into rotation by the Coriolis force. Shanghai forecast method, based o thermal steering concepts depending on the geostrophic wind, is outlined. *Subject Headings* **1. Typhoon forecasting 2. Steering 3. Northwest Pacific.**

4I–248 551.506.5:551.506.7(99

*§Gibbs, W. J., Gotley, A. V. and Martin, A. R., **Heard and Macquarie Islands, 1948. Part I (a), Results; Part I (b), Analyzed charts; Part I (c), Discussion.** *Australian National Antarcti Research Expedition, A.N.A.R.E. Reports, Series D*, v. I, Pts. I a,b,c, Oct. **1950,** Oct. **1951,** Oct **1952.** 3 v. tables, figs., charts, refs. **DWB**—Pt. Ia includes results of meteorological observation at Heard and Macquarie Islands during 1948, printed from Hollerith cards. Pt. Ib consists o analyzed charts of the Antarctic for each day of June and Dec. 1948. Pt. Ic, primarily a discussio of the observations, and charts in Pts. a and b, include comments on Southern Hemisphere circulatio

ıd synoptic analysis, charts of upper air soundings and topographic maps of the islands and plans the stations. (For fuller abstracts *see items* 3.5–52 and 4.6–36 in May 1952 and June 1953, *MAB.*) *ubject Headings:* **1. Observational data 2. Upper air data 3. Heard Island 4. Macquarie Island Southwest Pacific 6. Antarctica 7. Indian Ocean. I. Australia. Dept. of External Affairs. ntarctic Div. II. Australian National Antarctic Research Expedition, 1947–1949 III. Law, hillip G.** (*ed.*).—*M.R., I.L.D.*

4I–249 551.577(932)

†*Giovannelli, J. (*Chief Engineer, Met. Service, Caledonia*), **Le régime pluviométrique de la Nou-elle-Calédonie.** [Rainfall regime in New Caledonia.] *New Caledonia. Service Météorologique · la Nouvelle—Calédonie et Dépendances, Publication*, No. 3, Aug. **1952.** 28 p. diagrs., 20+ tables, bliog. p. 28. **DWB**—Contains large folded station location and topographical chart, list of 29 ations and length of record for each, effect of relief and other factors on rainfall regime, cyclones ıd anticyclones, air masses, rainfall types, annual variation, diurnal variation in polar, subtropical ıd equatorial air masses, geographic distribution, accidental variations (in cloudbursts), dry and et years, extreme intensities, comparison with other places in Southwest Pacific, probabilities, eriodicities (not evident), etc. Histograms, isohyetal charts, frequency tables and a bibliography re included. Data are also given by stations. *Subject Headings:* **1. Rainfall data 2. Climate of ew Caledonia 3. New Caledonia, Southwest Pacific.**—*M.R.*

4I–250 551.588.1(266.5):633.18

Hanzawa, Masao and Inoue, Tamio, **Relation between oceanic and atmospheric states in the lorth Pacific Ocean for the year of bad and good rice crop.** *Japan. Central Meteorological Ob-ervatory, Tokyo, Oceanographic Reports*, 2(3):283–288, June **1952.** 5 figs., 8 refs. **MH-BH**—nfluences of areas of negative pressure and temperature departure in North Pacific and of periods f weak activity of the Pacific anticyclone on origin of the "Kyōrei" or very bad rice crop considered. *ubject Headings:* **1. Marine influences 2. Agricultural meteorology 3. Northwest Pacific 4. Japan.**

4I–251 551.507.2

Hull, Blanche, **North Atlantic and North Pacific ocean weather stations 1945–1950.** Paper resented at the American Meteorological Society Meeting, Washington, 1952. Abstract in: *merican Meteorological Society, Bulletin*, 33(2):75, Feb. **1952.** Original unchecked. **MH-BH**—ime intervals during which pibal, radiosonde, surface measurements and bathythermography oundings were being made by the U. S. Coast Guard, Navy, and foreign ships are recorded for the arious stations. Data assembled is in such form that it may be used on punch cards and will aid n the definite cataloging of fixed weather observations. *Subject Headings:* **1. Marine meteorology . Ocean weather stations 3. North Atlantic 4. North Pacific.**—*Author's abstract.*

4I–252 551.501.7(265,5)

Hutchings, J. W., **A meridional atmospheric cross-section for an oceanic region.** *Pacific Science ongress, 7th, New Zealand*, 1949, *Proceedings*, 3:62–66, **1952.** 2 figs., 2 refs., 2 tables. Also in: *ournal of Meteorology*, 7(2):94–100, April **1950. DWB**—Based on radiosonde data for 1943–1947 t a dozen stations in the Southwest Pacific, summer and winter means of upper-air temperature and ind (at standard heights of 20/km) and heights of principal isobaric surfaces have been compiled nd are presented in the form of tables or mean cross sections along the 170th meridian E. The ross sections show the maximum west-wind field (jet stream) to be in the zone where the tropical ropopause (16 km) overlaps the polar tropopause (10–12 km). (*Same item as* 7–40, July 1950, *MAB.*) *Subject Headings:* **1. Upper air temperatures 2. Jet stream 3. Tropopause 4. Southern Iemisphere 5. Southwest Pacific.**—*M.R.*

4I–253 551.515.2

Ives, Ronald L., **Hurricanes on the west coast of Mexico.** *Pacific Science Congress, 7th, New ealand, 1949, Proceedings*, 3:21–31, **1952.** 3 figs., 10 refs. **DWB**—Frequency, behavior, magnitude nd trajectories of Mexican west coast hurricanes outlined on basis of information available up to 948. Known and suspected effects of these hurricanes and need for further study of these dis-urbances discussed. *Subject Headings:* **1. Hurricanes 2. Mexico 3. Northwest Pacific.**

4I–254 551.506.3:551.465(265)

*Japan. Central Meteorological Observatory, Tokyo, **The results of marine meteorological nd oceanographical observations.** No. 1–8, Jan. 1947–Dec. 1950. published, **1950–1952.** tables. **MH-BH**—Tables give wind speed visibility, weather, state of sea, swell, color of sea, transparency, irection of current, chemical and hydrogen-ion composition, etc. for serial oceanographic observa-ions in the Pacific east of Japan (30°–43°N: 140°–150°E). Marine meteorological observations are

tabulated in a separate section of this detailed and voluminous series of reports. *Subject Heading* **1. Marine meteorological data 2. Oceanography 3. Northwest Pacific.**—*M.R.*

4I–255 551.501.

Loewe, R. and Radok, U., **A meridional aerological cross-section in the sout-west Pacifi** *Pacific Science Congress, 7th, New Zealand, 1949, Proceedings*, 3:56–62, **1952.** 7 figs. **DWB**—"I this study 4,800 radiosonde flights from six coastal and three inland stations of eastern Australia are used to draw summer and winter vertical cross-sections (to 16 km) of average temperatu (isotherms at 5° intervals) along the east coast of Australia and northward to the Marianas, 15°N Macquarie Island (54°S) radiosonde data and observations from Operation "Highjump," 1946–4 and from Little America (78½°S, Arnold Court) used to extend cross-sections to 90°S. *Subje Headings:* **1. Cross sections 2. Vertical temperature distribution 3. Southwest Pacific 4. An arctica.**

4I–256 551.524.4(266

Neiburger, Morris and Johnson, David S., **The inversion over the eastern North Pacific Ocean** Paper presented at the American Meteorological Society Meeting, New York, Jan. 26–29, 195 Abstracted in: *American Meteorological Society, Bulletin*, 33(9):400, Nov. **1952. MH-BH.** Origina unchecked.—Soundings made aboard University of California vessels during 1949–1952, togethe with those made at station weather ships and at coastal and island stations were summarized to giv the average topography and other characteristics of the inversion over the eastern half of the Nort Pacific Ocean. These characteristics are compared with those found over the Atlantic by vo FICKER, and their relationship to the anticyclonic circulation is discussed. *Subject Heading* **1. Inversions 2. Northeast Pacific.**—*Author's abstract.*

4I–257 551.5(26):0

†**Pacific Science Congress, 1st–7th, 1923–1949.** Pacific Science Association. Last one pub lished, Wellington, N. Z., **1952.** figs., refs., tables, charts. **DWB** The proceedings of each congres are published in from one to six volumes, one of which is generally entitled "Meteorology" or "Me teorology and Oceanography" and consists of numerous short articles on all phases of the subjec (or subjects) as applied to the Pacific area. Reports of the standing committees on meteorolog and oceanography and reports of current research at various of the national meteorological service often included. *Subject Headings:* **1. Science congresses 2. Marine meteorology 3. Ocean ography 4. Pacific Ocean. I. Pacific Science Association.**

4I–258 551.506.6:551.555.

Riehl, Herbert, **A proposed 'trade' expedition.** *Royal Meteorological Society, Quarterly Journal* 78(335):104–105, Jan. **1952.** fig. **DWB**—Recommends an expedition of 5 ships and 3 aircraf in the NE Pacific to study large scale balance and vertical exchange of heat, moisture and momentum in trade winds. *Subject Headings:* **1. Oceanographic expeditions 2. Trade winds 3. Northeas Pacific.**—*C.E.P.B.*

4I–259 551.575.1(265

Takahashi, Yoshihiko, **On sea fog of advection type over the Oya Shio.** *Pacific Science Congress 7th, New Zealand, 1949, Proceedings*, 3:69–77, **1952.** 8 figs., refs., eqs. **DWB**—Notes on atmospheri pressure and sea temperature distributions favorable to sea fog formation and on the physica characteristics of such fog precede presentation of author's new theory on formation of advectio type sea fog. Taking into consideration boundary conditions at the sea surface and vertical dis tribution of wind, he proves that an "ascending component exists in the air which moves over suc cessively colder and colder water surfaces and consequently sea fogs are produced in the same way as ordinary cloud." *Subject Headings:* **1. Advection sea fog 2. Northwest Pacific.**

4I–260 551.526.6(265/6)

*U. S. Coast and Geodetic Survey, **Surface water temperatures at tide stations, Pacific Coast, North and South America and Pacific Ocean islands.** *U. S. Coast and Geodetic Survey, Special Publication*, No. 280, rev. ed., **1952.** 59 p. mostly tables. Formerly: *U. S. Coast and Geodetic Survey, TW-2.* **DWB**—Mean monthly water temperatures for each year of record (through 1951) and extremes (daily values) in °F are tabulated for all tide stations on the Pacific Coast of North and South America and the Pacific Islands including Hawaii, the Philippines, the Aleutians, and inland coastal water stations. Readings are taken from bucket samples in the first foot or two of water below the surface, and at one time a day (not uniform). Bihourly readings made at Avila, Calif., Friday Harbor, Wash., Balboa and Cristobal, Canal Zone, are summarized by hour and month. Largest record is 1922–1951. Graphs showing mean and extreme monthly temperatures

for 33 stations appended. *Subject Headings:* **1. Sea temperatures 2. Sea temperature data 3. Pacific Coast, United States 4. Pacific Ocean.**—*M.R.*

4I–261 551.582:656.6(9)

*U. S. Hydrographic Office, **Sailing directions for the Pacific Islands. Vol. I. Western groups including the Solomon Islands.** 1st ed. **Vol. II. The Santa Cruz Group, the New Hebrides, New Caledonia, and adjacent islands.** 1st ed. **Vol. III. Eastern Groups.** 6th ed. *U. S. Hydrographic Office, Publications*, No. 165A, 165B, 166, all **1952.** 382 p.; 238 p.; 420 p. tables, appends. loose leaf. **DN-HO**—Appendix II in each volume consists of monthly mean and extreme meteorological data for island stations and selected ocean areas based on 2–35 years of observations. *Subject Headings:* **1. Sailing directions 2. Climatic data 3. Pacific Islands 4. Central Pacific 5. West Pacific.**

4I–262 551.591(266.5)

*U. S. Hydrographic Office, **North Pacific Ocean. Visibility reports submitted by various vessels of the U. S. 1931–1936.** Wash., D. C., U. S. Hydrographic Office, Marine Climatology Branch, Division of Oceanography, **1952.** 6 vols. all tables. **DN-HO**—Data taken 6 times daily include visibility in thousands of yards, upper and low cloud types and amounts, wind direction and velocity, barometric pressure, air and sea temperatures and state of the weather in form of log sheets submitted to Hydrographic Office from ships on the North Pacific and in some harbors along the China coast. *Subject Headings:* **1. Marine meteorological data 2. Visibility at sea 3. North Pacific 4. China coast.**

1953

4I–263 551.513:551.515:551.557:551.524.7

Gibbs, W. J., **A comparison of hemispheric circulations with particular reference to the western Pacific.** *Royal Meteorological Society, Quarterly Journal*, 79(339):121–136, Jan. **1953.** 19 figs., table, 13 refs. **DWB**—Distributions of cyclones and anticyclones in midwinter and midsummer (Jan., July) in the N and S hemispheres compared and zonal frequencies plotted. Mean geostrophic W wind profiles up to 100 mb centered on 150°E compared and a general summary given of the nature of the circulation, especially near Australia. Effect of the different configuration of the two hemispheres on development of anticyclonic vortices discussed. (*Same item as* 4D–270, April 1953, *MAB.*) *Subject Headings:* **1. Zonal perturbations 2. Australia 3. West Pacific.**—*C.E.P.B.*

4I–264 551.582.2(961.1)

*Giovannelli, J., **Essai climatologique sur les Iles Wallis.** [Climatological essay on the Wallis Islands.] *New Caledonia. Service Météorologique de la Nouvelle-Calédonie et Dépendances, Publication*, No. 4, May **1953.** 21 p. map. Mostly tables. **DWB**—Monthly temperature, humidity, rainfall and wind data for the Wallis Islands, 13°19′S, 176°10′W, 1949–1951. *Subject Headings:* **1. Climate of Wallis Islands 2. Climatic data 3. Wallis Islands, Southwest Pacific.**

4I–265 551.515.2(265.5)

Hutchings, J. W., **Tropical cyclones in the Southwest Pacific.** *New Zealand. Meteorological Office Note*, No. 37, **1953.** 9 figs., 6 tables, foot-refs. Reprinted from: *The New Zealand Geographer*, 9(1):37–57, April **1953. DLC**—Descriptive account of the character, genesis, frequency and regions of origin of tropical cyclones (mean winds $\geq$9 Beaufort) in the region 0–30°S, 150°E–150°W using data from the New Zealand Meteorological Service six hourly surface synoptic weather charts. Some monthly data and storm track charts included. *Subject Headings:* **1. Tropical cyclones 2. Southwest Pacific.**

4I–266 551.557:551.513:551.576.2(265/6)

Palmer, Clarence E., **The Central Pacific Project.** California. University. Institute of Geophysics, Contract AF 19(122)-414, Final Report, March **1953.** 16 p. 5 refs. **DWB**—Summary of the three-fold program of research comprising 1) exploratory and descriptive work on the lower equatorial stratosphere 2) photography of oceanic tropical clouds and 3) development of a hypothesis concerning the relation between the genesis of upper-level tropical cyclones in the Marshall Islands and variations in the output of solar energy. References to fuller treatments of each phase of the research given. No data included. *Subject Headings:* **1. Upper equatorial westerlies 2. Cloudiness at sea 3. Upper level cyclogenesis 4. Central Pacific. I. California. University. Institute of Geophysics II. Contract AF 19(122)-414.**

4I–267 551.509.34:551.513.1

*U. S. Bureau of Aeronautics, **An evaluation of single-station analysis and forecasting methods.** Project AROWA (TED-UNL-MA-501.17), 1st–3rd Quarterly Progress Reports, July 1, **1952**–March

31, 1953. 6 p.; 12 p.; 5 p. figs., tables. Appendix A to 2nd Quarterly Progress Report: **Catalogue of blocking dates in the North Atlantic Ocean and North Pacific Ocean.** 20 p. mostly tables. **DWB**—First report outlines briefly commencement of research described in reports 2 and 3. In 2nd report, method is outlined and illustrated for developing "empirical models to provide the forecaster with a means of interpreting the upper-air pattern, when a closed high appears at the 500 mb level and persists for at least two days within the grid system established for the North Pacific Ocean." Appendix comprises a catalogue of the dates and locations of such "blocking highs" during selected periods of 1945–1951. Third report contains account of progress on revision of the "classical cyclone model to show variations from the standard in different parts of the long wave pattern." Storms crossing Atlantic Ocean, 1949–1952, and some dating back to 1937 analyzed for this purpose. Description included of work planned and undertaken aimed at consistently and objectively defining the "weather pattern for each sector of the blocking pattern in terms of the location of the center of the upper atmosphere closed high." *Subject Headings:* **1. Single station forecasting 2. Objective forecasting 3. Blocking action 4. North Pacific 5. North Atlantic. I. Aerophysics Research Foundation, Santa Barbara, Calif. II. Contract N189s-86995 III. Project AROWA (TED-UNL-MA-501.17).**

4I–268 551.513(265/6)

†Yoshida, Kozo; Mao, Han-Lee and Horrer, Paul L. (*Scripps Inst. of Oceanography, Univ. of Calif.*), **Circulation in the upper mixed layer of the equatorial North Pacific.** *Journal of Marine Research*, 12(1):99–120, **1953.** 4 figs., 2 tables, 16 eqs., bibliog. p. 119–120. **DWB**—Circulation treated by solving the steady-state equations containing terms of Coriolis force, pressure gradient, and horizontal as well as vertical mixing. Assumptions made include: 1) the coefficient of vertical eddy viscosity is constant in the top homogeneous layer and vanishes at the bottom of the layer; 2) the horizontal velocity field may be approximated by a sinusoidal function, and thus horizontal mixing terms may be chosen in simple form; and 3) the mean wind-stress distribution and mean density distribution suggested by REID are generally applicable. Mathematical development of the vertical motion is carried out in detail and numerical results are obtained. Agreement of the results obtained herein with available observed data and theoretical considerations by other investigators is discussed. *Subject Headings:* **1. Atmospheric circulation 2. Dynamic meteorology 3. Equatorial Pacific 4. North Pacific.**—*Authors' abstract.*

1954

4I–269 581.05:016(96)

†Fosberg, F. R. and Sachet, M.-H., **Bibliography of land ecology and environment of coral atolls.** 1 vol. 3 Pts. To be published early in **1954.** Approx. 4000 items.—Annotated list of references to all land aspects of coral atolls (except social anthropology) listed alphabetically by author with detailed subject cross indexes. Includes climatology and meteorology. Pt. 1, **Coral atolls,** and Pt. 2, **Botany of Micronesia,** have subject indexes. Pt. 3, **Vegetation of tropical Pacific islands** has a geographic index. Publisher and place of publication as yet undetermined. *Subject Headings:* **1. Bibliographies 2. Coral atolls of Pacific 3. Ecology 4. Pacific Area.**—*M.R.*

4I–270 551.5(26)

[**Current research concerned with the Pacific area.**] As yet unpublished. 1) California, University at Los Angeles: (a) An atlas of tropical clouds containing 55 photographs in color with accompanying synoptic data and a discussion of physical processes accompanying cumulus precipitation. (b) The development of low level tropical cyclones in the Marshall Islands area. (c) The development of upper level cyclones in the Marshall Islands area. (d) Structure of the anticyclone over the eastern North Pacific in summer, including an analysis of the three-dimensional field of motion. 2) Chicago, University. Studies of the Pacific tradewind inversion and of typhoons. Field investigation of typhoons is being carried on from Guam by CHARLES L. JORDAN. 3) Honolulu, U. S. Weather Bureau: (a) Stidd, C. K., Hawaiian rainfall estimates from mean monthly weather charts. (b) Wilkinson, C. M., Extended range forecasts of quantitative rainfall for Hawaiian island area. (c) Woodcock, Alfred H., Chlorinity of rainfall in the Hawaiian Islands. 4) New Zealand Meteorological Service, Robertson, N. G. and Larsen, I. N., Preparation of statistics on high level winds over South Pacific air routes. 5) Philippine Weather Bureau, (a) Alcaraz, Arturo, Manila microseisms, their relation to Pacific Ocean storms. (b) Estoque, Mariano A., Circulation and convergence over the tropical Northwestern Pacific from May to December. 6) Tokyo, Meteorological Research Institute, Arakawa, H., On the dynamic climatology of NW Pacific. To our knowledge, none of the above has appeared as yet in published form. *Subject Headings:* **1. Meteorological research 2. Marine meteorology 3. Pacific Area.**

SUPPLEMENTARY MATERIAL

4I–271 551.582(96)

*U. S. Weather Bureau, **Climatic features of the Pacific Island region. Part I.** Washington, 1936. 74 p. 33 charts, 3 tables. **DWB**—Pressure, temperature, surface and upper winds, cloudiness, precipitation and weather types for the tropical Pacific Island region (including NE trade region, SE trade region and region of monsoonal influence) are discussed and amplified with observational material from U. S. foreign island weather stations, Weather Bureau records of 50 years of ship observations and pilot balloon observations from island and ship stations. Incorporates reworking of pilot data done in 1930's. *Subject Headings:* **1. Marine climatology 2. Pacific Islands 3. West Pacific.**

4I–272 551.582.2(266.5)

*Andreev, V., **Kuril'skie Ostrova.** [Kurile Islands.] *Morskoĭ Sbornik*, Leningrad, 21(11, 12): 75–87, 87–99, **1938.** figs., tables, refs. **DLC**—The second part gives data for temperature, cloudiness, fog frequency, precipitation, wind, hydrographic and ice conditions. *Subject Headings:* **1. Climatic data 2. Climate of Kurile Islands 3. Kurile Islands, Northwest Pacific.**—*A.A.*

4I–273 551.579:551.46

†*Leonov, A. K., **Opyt primeneniia tsirkuliatsionnoĭ teorii B'erknesa dlia opredeleniia vodnogo balansa IAponskogo Moria.** [Experiment in application of Bjerknes' circulation theory for the determination of the water balance of the Sea of Japan.] (In: Leonov, A. K. (*ed.*), **Pamiati IUliia Mikhaĭlovicha SHokal'skogo. Sbornik statteĭ. Chast' II.** [In memory of IU. M. Shokal'skiĭ. Collection of articles. Pt. II.] Moscow, **1950.** p. 83–183. 56 figs., 24 tables, 34 refs.) **DLC**—One of the most comprehensive works on the water balance of a single sea. It is based on numerous Japanese and Soviet oceanographic expeditions. A circulation map shows a cyclonic eddy north of 39°N. Isotherms in different depths are given for a part of the North Pacific east of Japan. Current measurements and isotachs are presented for the straits and the annual course of total discharges is computed. Schematic isohyets for winter, summer and the year are based mainly on coastal stations, giving a total of 1390 km³ (1330 mm) for the year. Annual runoff from the land amounts to 212 km³. Evaporation maps are based on observations near the shore made by OKADA. These data allow different interpretations for the whole sea. The total evaporation was estimated as 900 km³ (925 mm). Finally, the seasonal variations of the water level are discussed and their connection with the varying monsoon activity shown. The oceanographer will be interested also in the detailed treatment of tides. BJERKNES' circulation theory not discussed. *Subject Headings:* **1. Water balance of seas 2. Evaporation from seas 3. Ocean currents 4. Sea of Japan.**—*A.A.*

4I–274 551.506.7(96)

*U. S. Dept. of Defense, **Operation greenhouse; meteorological data (March–May 1950).** [**1950.**] unpaged. all tables. **DWB**—Photoreproduction from IBM listings of all surface, aircraft, wind aloft and radiosonde data collected each day from March 1 to May 25, 1950 in the Eniwetok-Dwajalein area of Micronesia. Radiosonde data for six stations at 4 regular observation periods daily are given *in extenso*. The data are not summarized. The figures are often difficult to read, and there is no evidence of editorial organization or even the basic features of documentation (issuing office, date and place of publication, pagination or indexing). *Subject Headings:* **1. Meteorological data 2. Upper air wind data 3. Radiosonde data 4. Micronesia, West Pacific.**—*M.R.*

4I–275 551.583.7:550.4

Hough, Jack L., **Pleistocene climatic record in a Pacific Ocean core sample.** *Woods Hole Oceanographic Institution, Contribution*, No. 641, **1952.** Also in: *Journal of Geology*, 61(3):252–262, May **1953.** table, bibliog. p. 261–262. **DWB**—A core sample of the bottom in the southeastern Pacific Ocean contains several layers of red clay and globigerina ooze. The highly calcareous ooze is correlated with warm-water conditions, whereas the red clay, which is low in carbonate, is correlated with cold-water conditions because the carbonate is more soluble in cold water. The core is interpreted as a record of climate. Age determinations made by W. D. Urry, using the "percentage of equilibrium method" for uranium, and radium give dates for the various layers covering a period of several hundred thousand years. *Subject Headings:* **1. Geological climates 2. Geochronology 3. Geochemistry 4. Southeast Pacific.**—*From author's abstract.*

4I–276 551.5

Pacific Science Association, **Honolulu Information Bulletin, November 1952.** 12 p. Mimeo. **DWB**—Research projects in meteorology in Australia, Indonesia, Japan, New Zealand and Philippines, Hawaii and California, now in progress are listed at great length. *Subject Headings:* **1. Meteorological research projects 2. Pacific science research.**—*M.R.*

4I–277 551.46

*Pattullo, June, **Mixed layer depth determined from critical gradient frequency.** California. University. Scripps Institution of Oceanography, Contract N6ori-111, Task VI, Oceanographic Report No. 28, May 5, **1952.** 9 p. 8 figs., 3 tables. **DWB**—Data from six weather stations in the North Pacific Ocean are used to determine the mixed layer depths in the ocean. The frequency of sudden increases in ocean temperature gradients is shown for each month in different depths. The depth of the mixed layer varies from about 50 to 100 ft in June and July and increases to 300–400 ft in Jan. and Feb. *Subject Headings:* **1. Oceanography 2. Ocean temperatures 3. North Pacific Ocean. I. California. University. Scripps Institution of Oceanography II. Contract N6ori-111, Task VI.**—*A.A.*

4I–278 551.521(266)

Thompson, Aylmer H. and Neiburger, Morris, **The radiational temperature changes over the eastern North Pacific Ocean in July 1949.** California. University at Los Angeles. Dept. of Meteorology, Contract N6onr 27514, Project NR-082-065, Subtropical Pacific Meteorology Project, Technical Report No. 2, Nov. 30, **1952.** 12 p. 4 figs., 8 refs. **DWB.** Also in: *Journal of Meteorology*, 10(3):167–174, June **1953.** 4 figs., 11 refs. **MH-BH**—Calculations of 24 hr temperature changes at 700 mb in anticyclone over eastern N. Pacific, due to absorption of solar radiation and to long wave radiation exchange, for 9 days July 2–14, 1949, are described. Results on 3 days are shown by charts, including net heating or cooling. Absorption of solar radiation gives a rise of 0.3–1.0°C/day, long wave radiation a fall of 0 to over 2.5°C/day; maxima and minima shift from day to day following changes of anticyclone structure. Net result ranges from slight warming to cooling by 2.5°C+. Effect of cloud is included. Maximum computed downward velocity is 3 cm/sec. *Subject Headings:* **1. Radiation balance 2. North Pacific.**—*C.E.P.B.*

4I–279 551.513.2(265/6)

Beamer, C. C. and Serebreny, S. M., **Pacific jet stream research, for the period 1 February–30 April 1953.** Pan American World Airways, Inc., Pacific-Alaska Div., Bureau of Aeronautics, Project AROWA, Contract N189s-90981, Progress Report No. 1, May **1953.** 9 figs., fold. charts. **DWB**—First report of progress in research aimed at increasing knowledge of the location and structure of the jet stream in the Pacific (20°N, 115°E; 50°N, 115°E; 50°N, 150°W; 20°N, 150°W) and at evolving forecasting techniques for military and civilian usage. Analysis of one year of data available over the Japanese Islands and environs and study of "cataloged Pan American World Airways flight data that illustrate certain significant features of the jet stream longitudinally" emphasize: 1) the well-developed temperature inversion (generally between 500 and 400 mb) which marks the zone of maximum vertical shear; 2) the great depth of the cold dome in the major outbreak associated with the jet stream; and 3) the real non-uniformity of the wind field at the bottom of the polar jet stream core, which condition seems to create the existence of jet stream streaks. Jet stream factors currently under investigation are listed (p. 6), projected jet stream laboratory models briefly described and illustrated, and future research plans discussed. Sample Pan American World Airways folding charts, tables and height-temperature logs for use in recording jet stream observational data appended. *Subject Headings:* **1. Jet stream structure 2. Jet stream location 3. Jet stream models 4. Pacific Ocean.**—*M.P.K.*

4I–280 551.509.318(265)

Clover, W. H. and Serebreny, S. M., **North Pacific weather types, Type I and II.** *U. S. Office of Naval Operations, NAVAER* 50-1R-138, 143, Aug., Sept. **1944.** 8 p. 13 fold. charts; 8 p. 7 fold. charts. **DWB**—Studies and analyses of weather types over the North Pacific based on 9 years of data and intended to present an integrated picture of the synoptic situation and expected flight conditions throughout the year. Each study consists of a textual discussion of a characteristic synoptic pattern with forecast hints for specific stations, cross section showing distribution of associated weather conditions and a series of folding synoptic charts drawn from actual case histories. Patterns discussed are: a common case in late winter or early spring of a family of occluded storms with no intervening Polar High lying across the Pacific north of Hawaii or of the recurring (Nov.–April) Northeast Blow situation along the U. S. west coast. *Subject Headings:* **1. Weather types 2. Synoptic studies 3. North Pacific.**

PART III. METEOROLOGICAL ARTICLES APPEARING IN RECENTLY ISSUED PUBLICATIONS

Note: The contents of periodicals included in this section are for information only, and will not be listed in the monthly indexes until abstracted. When material is furnished in advance of date of publication, the pagination may be omitted.

American Meteorological Society, Bulletin, Volume 34, Number 5, May, 1953.

Tolefson, H. B.: **Some possible reductions in gust loads through use of radar in transport airplanes,** p. 187.
McDonald, James E.: **Remarks on the development of the Coriolis principle,** p. 192.
Gustafson, A. F.: **On anomalous winds in the free atmosphere,** p. 196.
Hamilton, E. L. and Andrews, L. A.: **Control of evaporation from rain gages by oil,** p. 202.
Long, Robert R.: **A laboratory model resembling the "Bishop-Wave" phenomenon,** p. 205.
Foster, Norman B. and Fosket, Laurence W.: **A photoelectric sunshine recorder,** p. 212.
Gifford, F., Jr.: **Addendum to "Alignment chart for atmospheric diffusion calculations,"** p. 216.

Angewandte Meteorologie, Berlin, Volume 1, Number 10, June 1953.

Reiter, Reinhold: **Beziehungen zwischen Sonneneruptionen, Wetterablauf und Reaktionen des Menschen, dargestellt am Verlauf der Infra-Langwellenstörungen, der Geburtenziffer und der Verkehrsunfallziffer,** [Relations between solar eruptions, weather and human reactions, shown by the course of infra-longwave disturbances, birth rates and figures of traffic accidents], p. 289–303.
Zenker, H.: **Messungen des Kerngehaltes der Luft in Heringsdorf/Usedom. Ein Beitrag zur lufthygienischen Überprüfung der Kur- und Erholungsgebiete,** [Measurements of nuclei content of the air in Heringsdorf. A contribution to the examination of atmospheric hygiene of health resorts and convalescent places], p. 304–313.
Hentschel, G.: **Phänologisch-singuläre Prognostik der Winterroggenblüte,** [Forecasting flowering of winter rye by phenological singularities], p. 314–318.

Annales de Géophysique, Paris, Volume 9, Number 2, 1953.

Hée, A. and Jarovoy, M.: **Autoradiographie des rayons β du potassium,** [Autoradiography of potassium β-rays], p. 153–157.
Poincelot, P.: **Application de la notion de vitesse de groupe à la propagation de la houle en eau profonde,** [Application of the idea of group speed to propagation of swell in deep waters], p. 158–160.
Özdogan, Ihsan: **Variomètre électromagnétique pour la composante verticale,** [Electromagnetic variometers for the vertical component], p. 161–163.
Barré, M.: **Propriétés électriques du blizzard,** [Electrical properties of blizzards], p. 164–183.

Ciel et Terre, Uccle, Belgium, Volume 59, Number 3/4, March/April 1953.

Denisse, J. F.: **Les centres solaires d'activité radioélectrique et leur influence sur l'activité géomagnétique,** [Solar centers of radioelectric activity and their influence on geomagnetic activity], p. 53–67.
Sneyers, R.: **La mesure de la pression atmosphèrique,** [Measurement of atmospheric pressure], p. 82–92.
Poncelet, L.: **A propos du "ras de marée" du 1er février 1953,** [The tidal wave of Feb. 1, 1953], p. 93–96.
Sneyers, R.: **La tempête et débordement de la mer du 1er février 1953,** [Gales and inundation by the sea of Feb. 1, 1953], p. 97–108.
Coutrez, G.: **Observations des taches solaires,** [Sunspot observations], p. 108.
Lardinois, E.: **Observations phénologiques en 1952,** [Phenological observations in 1952], p. 109–110.
Sneyers, R.: **Le temps en janvier et février 1953,** [The weather in Jan. and Feb. 1953], p. 111–114.

Időjárás, [Budapest, Hungary], Volume 53, Number 1/2, Jan./Feb. 1949.

Takács, Lajos: **A napsütés, a hömérséklet és a csapadék valószinüségei Magyarországon,** [Probabilities of sunshine, temperature and precipitation in Hungary. Part 1], p. 1–14.

Aujeszky, László: **Meteorológiai elömunkálatok a magasépitésben végzendö szélterhelés-számitásokhoz,** [Meteorological contributions to the calculation of wind load on structures], p. 15–25.

Barta, György: **A higanyos légnyomásmérés új gravitációs javítása,** [New gravity correction in mercury barometry], p. 26–28.

Kurelec, Viktor: **Az időjárás hatása a gyepnövények táplálóértékére,** [Effect of weather on the nutrition value of herbaceous plants], p. 29–33.

Möller, István: **A meteorológia érvényesítése müvelödésünkben és közéletünkben,** [Meteorology in Hungarian education and public life. Part 2], p. 34–38.

Aujeszky, László: **A zuzmara-előrejelzések néhány újabb problémája,** [New problems of rime forecasting], p. 39–40.

Berkes, Zoltán: Megjegyzések F. Baur: **"Einführung in die Grosswetterkunde" c. müvének V. fejezetéhez,** [Comments on Chapter 5 of F. Baur's "Einführung in die Grosswetterkunde"], p. 41–42.

Szabados, András: **A földalatti harmat képződése és jelentösége,** [Formation and importance of subterranean dew. Part 1], p. 43–47.

Thraen, August: **Das Klima von Budapest im Rahmen der jüngsten 89-jährigen Säkularperiode (1856–1944),** [The climate of Budapest during the latest 89-year secular period (1856–1944)], p. 86–87. Hungarian translation by Z. Berkes, p. 47–48.

Kérdö, István: **Adatok a meteoropathológia irodalmához,** [Bibliography on meteoropathology], p. 74–79.

Routine features:

Az elmult időjárás: **Frontátvonulási jegyzék; Légtömegnaptár; Magyarország időjárása,** [Weather summary: List of frontal passages; Air-mass diary; Weather in Hungary].

Müszerek és mérömüszerek, [Instruments and measuring apparatus].

Meteorológia mindenkinek, [Meteorology for everyone].

Irodalom. [Reviews.]

A Meteorológiai Intézet közleményei, [Announcements of the Hungarian Meteorological Institute].

A Magyar Meteorológiai Társaság ügyei, [Business of the Hungarian Meteorological Society].

Also numerous notes on observation of meteorological phenomena.

Volume 53, Number 3/4, March/April 1949.

Aujeszky, László: **A mesterséges esökeltés kérdésének mai állása,** [Present status of the problem of artificial rain stimulation], p. 89–98.

Kenessey, Kálmán: **Időjárás a Lomnici-csúcson,** [Weather on Lomnic peak, Tatra Mountains], p. 99–102.

Tóth, Géza: **Hozzászólás Möller István cikkéhez,** [Discussion of I. Möller's article on meteorology in Hungarian education], p. 103–104.

Schönfeld, Sándor: **Talajtan és éghajlattan,** [Soil chemistry and climatology], p. 104–109.

Berkes, Zoltán: **A csapadék évi járásának változásai,** [Variations in the annual course of precipitation. Part 1], p. 110–115.

Szabados, András: **A földalatti harmat képződése és jelentösége,** [Formation and importance of subterranean dew. Part 2], p. 117–118.

Takács, Lajos: **A napsütés, a hömérséklet és a csapadék valószinüségei Magyarországon,** [Probabilities of sunshine, temperature and precipitation in Hungary. Part 2], p. 119–129.

Ambrózy, Géza: **Az időjárási térképek szerepe a meteorológiai nevelésben,** [Use of weather charts in meteorological education], p. 130.

For routine features see No. 1/2 above.

Volume 53, Number 5/6, May/June 1949.

Tóth, Géza: **A Meteorológiai Intézet, a magyar meteorológiai tudomány és szolgálat ujjászervezése és korszerüsitése az ötéves terv keretében,** [Reorganization and modernization of the Meteorological Institute and of Hungarian meteorological science and practice under provisions of the five-year plan], p. 157–162.

Gorczyński, W.: **Az észrevehetö napfény és az erös napsütés időtartama,** [Duration of noticeable sunlight and of intense sunshine], p. 163–165.

Aujeszky, László: **A lehetséges napfénytartam növekedése a térszintfeletti magassággal,** [Increase of maximum sunshine duration as a function of height above the earth's surface], p. 166–168.
Ozorai, Zoltán: **A termohigrometrikus számolólap átalakítása,** [Transformation of the thermohygrometric computation table], p. 169–171.
Balázs, Ferenc: **A mélyen vetett őszi vetések felfagyásának élettana,** [Physiology of the freezing of deep-rooted autumn crops], p. 172–174.
Kakas, József: **Adatok Miskolc szélviszonyaihoz,** [Data on the wind regime of Miskolc], p. 175–177.
Szabados, András: **A földalatti harmat képződése és jelentősége,** [Formation and importance of subterranean dew. Part 3], p. 178–180.
Berkes, Zoltán: **A csapadék évi járásának változásai,** [Variations in the annual course of precipitation. Part 2], p. 181–185.
Takács, Lajos: **Baja város éghajlata képekben,** [Climate of Baja in drawings], p. 186.
For routine features see No. 1/2 above.

Volume 53, Number 7/8, July/August 1949.

Tóth, Géza: **A villámok szerkezete,** [Mechanism of lightning strokes], p. 222–225.
Jordan, Károly: **Periodikus menetet mutató észlelések megközelítése trigonometrikus függvénnyel,** [Approximation of observations showing periodicities by means of a trigonometrical function], p. 226–231.
Kérdö, István: **Az orvosmeteorológiai vizsgálatok módszertani kérdései és új feladatai,** [Methodological problems and new objectives of medical meteorological research], p. 232–237.
Berkes, Zoltán: **A csapadék évi járásának változásai,** [Variations in the annual course of precipitation. Part 3], p. 238–240.
Kakas, József: **Az ekvivalenshömérséklet napi középértékei Budapesten,** [Daily means of equivalent temperature in Budapest], p. 241–242.
Möller, István: **Tartamértékek, tartamgörbék,** [Time functions, time curves], p. 243–245.
Szönyi, György: **A csanádmegyei földihernyójárvány agrometeorológiai vonatkozásai,** [Agrometeorological aspects of a caterpillar invasion in Csanad district], p. 246–249.
For routine features see No. 1/2 above.

Volume 53, Number 9/10, September/October 1949.

Berényi, Dénes: **További vizsgálatok az időjárási elemek közötti kapcsolatokkal,** [Additional investigation on the correlation of weather elements. Part 1], p. 277–288.
Aujeszky, László: **Izotópia-jelenségek a légkörben,** [Isotopes in the atmosphere], p. 289–292.
Kenessey, Kálmán: **Konkoly Thege Miklós (1873–1949),** p. 293–295.
Bukó, Márta: **Az időjárás hatása az emberi szervezet normális és kóros müködéseire és halálára,** [Influence of weather upon normal and pathological phenomena in the human body and upon mortality], p. 297–304.
Berkes, Zoltán: **A csapadék évi járásának változásai,** [Variations in the annual course of precipitation. Part 4], p. 305–309.
Süle, Sándor: **Kerta község éghajlata, időjárása,** [Weather and climate of the town of Kerta], p. 312–319.
Schindler, Gerhard: **Messungen der Tageshelligkeit mit der Selenzelle,** [Measurement of daylight with the selenium cell], p. 342–344, Hungarian translation by L. Takács, p. 310–311.
For routine features see No. 1/2 above.

Volume 55, Number 7/8, July/August 1951.

Ozoray, Zoltán: **Nedvesség-elemek a légtömeg-elemzésben,** [Humidity factors in air-mass analysis. Part 1], p. 188–191.
K. J.: **Mit nyujt az ötéves terv a meteorológiának?** [What does the five-year plan offer to meteorology?], p. 192–194.
Borsos, József: **Adatok Korea éghajlatához,** [Data on the climate of Korea], p. 197–198.
Takácsy, László: **Tapasztalatok a frontátvonulások hatásáról, 3 évi boncolási anyag alapján,** [Physiological effect of frontal passages shown by an analysis of autopsies over a period of three years], p. 199–209.
Egerszegi, Sándor: **A szélerózió (deflácio) leküzdése erdösávrendszerrel,** [Prevention of wind erosion (deflation) by means of shelter belts], p. 210–215.
Berkes, Zoltán [comp.]: **Zlinszky László időjárási naplójegyzeteiböl.** [Excerpts from the weather diary of László Zlinszky. Part 4], p. 241–246.
For routine features see Vol. 53, No. 1/2 above.

Volume 56, Number 1/4, January/April 1952.

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